

SEQUENCE LISTING

<110> Kukolj, George and Pause, Armin  
<120> SELF REPLICATING RNA MOLECULE FROM  
HEPATITIS C VIRUS  
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<140> To be assigned  
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<150> 60/257,857  
<151> 2000-12-22  
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ggt ctg ata ctc ttg acc ttg tca ccg cac tat aag ctg ttc ctc gct 1895				
Gly Leu Ile Leu Leu Thr Leu Ser Pro His Tyr Lys Leu Phe Leu Ala 1895	20	25	30	
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Arg Leu Ile Trp Trp Leu Gln Tyr Phe Ile Thr Arg Ala Glu Ala His 1943	35	40	45	
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Leu Gln Val Trp Ile Pro Pro Leu Asn Val Arg Gly Arg Asp Ala 1991	50	55	60	
gtc atc ctc ctc acg tgc gcg atc cac cca gag cta atc ttt acc atc 2039				
Val Ile Leu Leu Thr Cys Ala Ile His Pro Glu Leu Ile Phe Thr Ile 2039	65	70	75	
acc aaa atc ttg ctc gcc ata ctc ggt cca ctc atg gtg ctc cag gct 2087				
Thr Lys Ile Leu Leu Ala Ile Leu Gly Pro Leu Met Val Leu Gln Ala 2087	80	85	90	95
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Gly Ile Thr Lys Val Pro Tyr Phe Val Arg Ala His Gly Leu Ile Arg 2135	100	105	110	
gca tgc atg ctg gtg cgg aag gtt gct ggg ggt cat tat gtc caa atg 2183				
Ala Cys Met Leu Val Arg Lys Val Ala Gly Gly His Tyr Val Gln Met 2183	115	120	125	
gct ctc atg aag ttg gcc gca ctg aca ggt acg tac gtt tat gac cat 2231				
Ala Leu Met Lys Leu Ala Ala Leu Thr Gly Thr Tyr Val Tyr Asp His 2231	130	135	140	
ctc acc cca ctg cgg gac tgg gcc cac gcg ggc cta cga gac ctt gcg 2279				
Leu Thr Pro Leu Arg Asp Trp Ala His Ala Gly Leu Arg Asp Leu Ala 2279	145	150	155	
gtg gca gtt gag ccc gtc gtc ttc tct gat atg gag acc aag gtt atc 2327				
Val Ala Val Glu Pro Val Val Phe Ser Asp Met Glu Thr Lys Val Ile 2327	160	165	170	175
acc tgg ggg gca gac acc gcg gcg tgg ggg gac atc atc ttg ggc ctg 2375				
Thr Trp Gly Ala Asp Thr Ala Ala Cys Gly Asp Ile Ile Leu Gly Leu 2375	180	185	190	
ccc gtc tcc gcc cgc agg ggg agg gag ata cat ctg gga ccg gca gac 2423				
Pro Val Ser Ala Arg Arg Gly Arg Glu Ile His Leu Gly Pro Ala Asp 2423				

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tcc caa cag acg cga ggc cta ctt ggc tgc atc atc act acg ctc aca Ser Gln Gln Thr Arg Gly Leu Leu Gly Cys Ile Ile Thr Ser Leu Thr 225	230	235	2519
ggc cgg gac agg aac cag gtc gag ggg gag gtc caa gtg gtc tcc acc Gly Arg Asp Arg Asn Gln Val Glu Gly Glu Val Gln Val Val Ser Thr 240	245	250	2567
gca aca caa tct ttc ctg gcg acc tgc gtc aat ggc gtg tgt tgg act Ala Thr Gln Ser Phe Leu Ala Thr Cys Val Asn Gly Val Cys Trp Thr 260	265	270	2615
gtc tat cat ggt gcc ggc tca aag acc ctt gcc ggc cca aag ggc cca Val Tyr His Gly Ala Gly Ser Lys Thr Leu Ala Gly Pro Lys Gly Pro 275	280	285	2663
atc acc caa atg tac acc aat gtg gac cag gac ctc gtc ggc tgg caa Ile Thr Gln Met Tyr Thr Asn Val Asp Gln Asp Leu Val Gly Trp Gln 290	295	300	2711
gcg ccc ccc ggg gcg cgt tcc ttg aca cca tgc acc tgc ggc agc tcg Ala Pro Pro Gly Ala Arg Ser Leu Thr Pro Cys Thr Cys Gly Ser Ser 305	310	315	2759
gac ctt tac ttg gtc acg agg cat gcc gat gtc att ccg gtg cgc cgg Asp Leu Tyr Leu Val Thr Arg His Ala Asp Val Ile Pro Val Arg Arg 320	325	330	2807
cgg ggc gac agc agg ggg agc cta ctc tcc ccc agg ccc gtc tcc tac Arg Gly Asp Ser Arg Gly Ser Leu Leu Ser Pro Arg Pro Val Ser Tyr 340	345	350	2855
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gtg gcc cat cta cac gcc cct act ggt agc ggc aag agc act aag gtg			3095

Val Ala His Leu His Ala Pro Thr Gly Ser Gly Lys Ser Thr Lys Val			
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Pro Ala Ala Tyr Ala Ala Gln Gly Tyr Lys Val Leu Val Leu Asn Pro			
435	440	445	
tcc gtc gcc gcc acc cta ggt ttc ggg gcg tat atg tct aag gca cat		3191	
Ser Val Ala Ala Thr Leu Gly Phe Gly Ala Tyr Met Ser Lys Ala His			
450	455	460	
ggt atc gac cct aac atc aga acc ggg gta agg acc atc acc acg ggt		3239	
Gly Ile Asp Pro Asn Ile Arg Thr Gly Val Arg Thr Ile Thr Thr Gly			
465	470	475	
gcc ccc atc acg tac tcc acc tat ggc aag ttt ctt gcc gac ggt ggt		3287	
Ala Pro Ile Thr Tyr Ser Thr Tyr Gly Lys Phe Leu Ala Asp Gly Gly			
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tgc tct ggg ggc gcc tat gac atc ata ata tgt gat gag tgc cac tca		3335	
Cys Ser Gly Gly Ala Tyr Asp Ile Ile Cys Asp Glu Cys His Ser			
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Thr Asp Ser Thr Thr Ile Leu Gly Ile Gly Thr Val Leu Asp Gln Ala			
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Glu Thr Ala Gly Ala Arg Leu Val Val Leu Ala Thr Ala Thr Pro Pro			
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Gly Ser Val Thr Val Pro His Pro Asn Ile Glu Glu Val Ala Leu Ser			
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agc act gga gaa atc ccc ttt tat ggc aaa gcc atc ccc atc gag acc		3527	
Ser Thr Gly Glu Ile Pro Phe Tyr Gly Lys Ala Ile Pro Ile Glu Thr			
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Ile Lys Gly Gly Arg His Leu Ile Phe Cys His Ser Lys Lys Cys			
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Asp Glu Leu Ala Ala Lys Leu Ser Gly Leu Gly Leu Asn Ala Val Ala			
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tat tac cgg ggc ctt gat gta tcc gtc ata cca act agc gga gac gtc		3671	
Tyr Tyr Arg Gly Leu Asp Val Ser Val Ile Pro Thr Ser Gly Asp Val			
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att gtc gta gca acg gac gct cta atg acg ggc ttt acc ggc gat ttc		3719	
Ile Val Val Ala Thr Asp Ala Leu Met Thr Gly Phe Thr Gly Asp Phe			
625	630	635	

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ggc att tac agg ttt gtg act cca gga gaa cgg ccc tcg ggc atg ttc Gly Ile Tyr Arg Phe Val Thr Pro Gly Glu Arg Pro Ser Gly Met Phe 690 695 700	3911
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gcc ttt aag gtc atg agc ggc gag atg ccc tcc acc gag gac ctg gtt Ala Phe Lys Val Met Ser Gly Glu Met Pro Ser Thr Glu Asp Leu Val 1060 1065 1070	5015
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act cag atc ctc tct agt ctt acc atc act cag ctg ctg aag agg ctt Thr Gln Ile Leu Ser Ser Leu Thr Ile Thr Gln Leu Leu Lys Arg Leu 1140	1145	1150	5255
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acc tgg ctc cag tcc aag ctc ctg ccg cga ttg ccg gga gtc ccc ttc Thr Trp Leu Gln Ser Lys Leu Leu Pro Arg Leu Pro Gly Val Pro Phe 1185	1190	1195	5399
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Phe	Phe	Thr	Glu	Val	Asp	Gly	Val	Arg	Leu	His	Arg	Tyr	Ala	Pro	Ala		
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tgc	aaa	ccc	ctc	cta	cg	gag	gag	gtc	aca	ttc	ctg	gtc	ggg	ctc	aat	5831	
Cys	Lys	Pro	Leu	Leu	Arg	Glu	Glu	Val	Thr	Phe	Leu	Val	Gly	Leu	Asn		
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Ala	Val	Leu	Thr	Ser	Met	Leu	Thr	Asp	Pro	Ser	His	Ile	Thr	Ala	Glu		
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acg	gct	aag	cgt	agg	ctg	gcc	agg	gga	tct	ccc	ccc	tcc	ttg	gcc	agc	5975	
Thr	Ala	Lys	Arg	Arg	Leu	Ala	Arg	Gly	Ser	Pro	Pro	Ser	Leu	Ala	Ser		
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tca	tca	gct	agc	cag	ctg	tct	g	c	c	tcc	ttg	aag	gca	aca	tgc	act	6023
Ser	Ser	Ala	Ser	Gln	Leu	Ser	Ala	Pro	Ser	Leu	Lys	Ala	Thr	Cys	Thr		
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Thr	Arg	His	Asp	Ser	Pro	Asp	Ala	Asp	Leu	Ile	Glu	Ala	Asn	Leu	Leu		
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Lys	Val	Val	Ile	Leu	Asp	Ser	Phe	Glu	Pro	Leu	Gln	Ala	Glu	Glu	Asp		
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Glu	Arg	Glu	Val	Ser	Val	Pro	Ala	Glu	Ile	Leu	Arg	Arg	Ser	Arg	Lys		
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Phe	Pro	Arg	Ala	Met	Pro	Ile	Trp	Ala	Arg	Pro	Asp	Tyr	Asn	Pro	Pro		
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ctg	tta	gag	tcc	tgg	aag	gac	ccg	gac	tac	gtc	cct	cc	gt	gta	cac	6311	
Leu	Leu	Glu	Ser	Trp	Lys	Asp	Pro	Asp	Tyr	Val	Pro	Pro	Val	Val	His		
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ggg	tgt	cca	ttg	ccg	cct	gcc	aag	gcc	cct	ccg	ata	cc	cct	cc	cg	6359	
Gly	Cys	Pro	Leu	Pro	Pro	Ala	Lys	Ala	Pro	Pro	Ile	Pro	Pro	Pro	Arg		
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gag atg aag gct aag gct tcc aca gtt aag gct aaa ctt cta tcc gtg Glu Met Lys Ala Lys Ala Ser Thr Val Lys Ala Lys Leu Leu Ser Val 1680 1685 1690 1695	6887
gag gaa gcc tgt aag ctg acg ccc cca cat tcg gcc aga tct aaa ttt Glu Glu Ala Cys Lys Leu Thr Pro Pro His Ser Ala Arg Ser Lys Phe 1700 1705 1710	6935
ggc tat ggg gca aag gac gtc cgg aac cta tcc agc aag gcc gtt aac Gly Tyr Gly Ala Lys Asp Val Arg Asn Leu Ser Ser Lys Ala Val Asn 1715 1720 1725	6983
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cct atg ggc ttc gca tat gac acc cgc tgt ttt gac tca acg gtc act Pro Met Gly Phe Ala Tyr Asp Thr Arg Cys Phe Asp Ser Thr Val Thr 1825 1830 1835	7319
gag aat gac atc cgt gtt gag gag tca atc tac caa tgt tgt gac ttg Glu Asn Asp Ile Arg Val Glu Glu Ser Ile Tyr Gln Cys Cys Asp Leu 1840 1845 1850 1855	7367
gcc ccc gaa gcc aga cag gcc ata agg tcg ctc aca gag cgg ctt tac Ala Pro Glu Ala Arg Gln Ala Ile Arg Ser Leu Thr Glu Arg Leu Tyr 1860 1865 1870	7415
atc ggg ggc ccc ctg act aat tct aaa ggg cag aac tgc ggc tat cgc Ile Gly Gly Pro Leu Thr Asn Ser Lys Gly Gln Asn Cys Gly Tyr Arg 1875 1880 1885	7463
cgg tgc cgc gcg agc ggt gta ctg acg acc agc tgc ggt aat acc ctc Arg Cys Arg Ala Ser Gly Val Leu Thr Thr Ser Cys Gly Asn Thr Leu 1890 1895 1900	7511
aca tgt tac ttg aag gcc gct gcg gcc tgt cga gct gcg aag ctc cag Thr Cys Tyr Leu Lys Ala Ala Ala Cys Arg Ala Ala Lys Leu Gln 1905 1910 1915	7559
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agc gcg ggg acc caa gag gac gag gcg agc cta cgg gcc ttc acg gag Ser Ala Gly Thr Gln Glu Asp Glu Ala Ser Leu Arg Ala Phe Thr Glu 1940 1945 1950	7655
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1955	1960	1965	
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cac gat gca tct ggc aaa agg gtg tac tat ctc acc cgt gac ccc acc His Asp Ala Ser Gly Lys Arg Val Tyr Tyr Leu Thr Arg Asp Pro Thr 1985	1990	1995	7799
acc ccc ctt gcg cggt gct gcg tgg gag aca gct aga cac act cca gtc Thr Pro Leu Ala Arg Ala Ala Trp Glu Thr Ala Arg His Thr Pro Val 2000	2005	2010	7847
aat tcc tgg cta ggc aac atc atc atg tat gcg ccc acc ttg tgg gca Asn Ser Trp Leu Gly Asn Ile Ile Met Tyr Ala Pro Thr Leu Trp Ala 2020	2025	2030	7895
agg atg atc ctg atg act cat ttc ttc tcc atc ctt cta gct cag gaa Arg Met Ile Leu Met Thr His Phe Phe Ser Ile Leu Leu Ala Gln Glu 2035	2040	2045	7943
caa ctt gaa aaa gcc cta gat tgt cag atc tac ggg gcc tgt tac tcc Gln Leu Glu Lys Ala Leu Asp Cys Gln Ile Tyr Gly Ala Cys Tyr Ser 2050	2055	2060	7991
att gag cca ctt gac cta cct cag atc att caa cga ctc cac ggc ctt Ile Glu Pro Leu Asp Leu Pro Gln Ile Ile Gln Arg Leu His Gly Leu 2065	2070	2075	8039
agc gca ttt tca ctc cat agt tac tct cca ggt gag atc aat agg gtg Ser Ala Phe Ser Leu His Ser Tyr Ser Pro Gly Glu Ile Asn Arg Val 2080	2085	2090	8087
gct tca tgc ctc agg aaa ctt ggg gta ccg ccc ttg cga gtc tgg aga Ala Ser Cys Leu Arg Lys Leu Gly Val Pro Pro Leu Arg Val Trp Arg 2100	2105	2110	8135
cat cgg gcc aga agt gtc cgc gct agg cta ctg tcc cag ggg ggg agg His Arg Ala Arg Ser Val Arg Ala Arg Leu Leu Ser Gln Gly Arg 2115	2120	2125	8183
gct gcc act tgt ggc aag tac ctc ttc aac tgg gca gta agg acc aag Ala Ala Thr Cys Gly Lys Tyr Leu Phe Asn Trp Ala Val Arg Thr Lys 2130	2135	2140	8231
ctc aaa ctc act cca atc ccg gct gcg tcc cag ttg gat tta tcc agc Leu Lys Leu Thr Pro Ile Pro Ala Ala Ser Gln Leu Asp Leu Ser Ser 2145	2150	2155	8279
tgg ttc gtt gct ggt tac agc ggg gga gac ata tat cac agc ctg tct Trp Phe Val Ala Gly Tyr Ser Gly Gly Asp Ile Tyr His Ser Leu Ser 2160	2165	2170	8327
cgt gcc cga ccc cgc tgg ttc atg tgg tgc cta ctc cta ctt tct gta			8375

Arg	Ala	Arg	Pro	Arg	Trp	Phe	Met	Trp	Cys	Leu	Leu	Leu	Ser	Val
2180								2185					2190	

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 Gly Val Gly Ile Tyr Leu Leu Pro Asn Arg \*  
 2195 2200

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 20 25 30  
  
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 Leu Ile Trp Trp Leu Gln Tyr Phe Ile Thr Arg Ala Glu Ala His Leu  
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 Gln Val Trp Ile Pro Pro Leu Asn Val Arg Gly Gly Arg Asp Ala Val  
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 Leu Met Lys Leu Ala Ala Leu Thr Gly Thr Tyr Val Tyr Asp His Leu  
 130 135 140  
  
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 Thr Pro Leu Arg Asp Trp Ala His Ala Gly Leu Arg Asp Leu Ala Val  
 145 150 155 160  
  
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 Ala Val Glu Pro Val Val Phe Ser Asp Met Glu Thr Lys Val Ile Thr  
 165 170 175  
  
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 Trp Gly Ala Asp Thr Ala Ala Cys Gly Asp Ile Ile Leu Gly Leu Pro  
 180 185 190  
  
 gtc tcc gcc cgc agg ggg agg gag ata cat ctg gga ccg gca gac agc 2425  
 Val Ser Ala Arg Arg Gly Arg Glu Ile His Leu Gly Pro Ala Asp Ser

195	200	205	
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caa cag acg cga ggc cta ctt ggc tgc atc atc act acg ctc aca ggc Gln Gln Thr Arg Gly Leu Leu Gly Cys Ile Ile Thr Ser Leu Thr Gly 225	230	235	2521
cgg gac agg aac cag gtc gag ggg gag gtc caa gtg gtc tcc acc gca Arg Asp Arg Asn Gln Val Glu Gly Glu Val Gln Val Val Ser Thr Ala 245	250	255	2569
aca caa tct ttc ctg gcg acc tgc gtc aat ggc gtg tgt tgg act gtc Thr Gln Ser Phe Leu Ala Thr Cys Val Asn Gly Val Cys Trp Thr Val 260	265	270	2617
tat cat ggt gcc ggc tca aag acc ctt gcc ggc cca aag ggc cca atc Tyr His Gly Ala Gly Ser Lys Thr Leu Ala Gly Pro Lys Gly Pro Ile 275	280	285	2665
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ggc gac agc agg ggg agc cta ctc tcc ccc agg ccc gtc tcc tac ttg Gly Asp Ser Arg Gly Ser Leu Leu Ser Pro Arg Pro Val Ser Tyr Leu 340	345	350	2857
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ggc atc ttt cgg gct gcc gtg tgc acc cga ggg gtt gcg aag gcg gtg Gly Ile Phe Arg Ala Ala Val Cys Thr Arg Gly Val Ala Lys Ala Val 370	375	380	2953
gac ttt gta ccc gtc gag tct atg gaa acc act atg cgg tcc ccg gtc Asp Phe Val Pro Val Glu Ser Met Glu Thr Thr Met Arg Ser Pro Val 385	390	395	3001
ttc acg gac aac tcg tcc cct ccg gcc gta ccg cag aca ttc cag gtg Phe Thr Asp Asn Ser Ser Pro Pro Ala Val Pro Gln Thr Phe Gln Val 405	410	415	3049
gcc cat cta cac gcc cct act ggt agc ggc aag agc act aag gtg ccg			3097

Ala His Leu His Ala Pro Thr Gly Ser Gly Lys Ser Thr Lys Val Pro			
420	425	430	
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Ala Ala Tyr Ala Ala Gln Gly Tyr Lys Val Leu Val Leu Asn Pro Ser			
435	440	445	
gtc gcc gcc acc cta ggt ttc ggg gcg tat atg tct aag gca cat ggt			3193
Val Ala Ala Thr Leu Gly Phe Gly Ala Tyr Met Ser Lys Ala His Gly			
450	455	460	
atc gac cct aac atc aga acc ggg gta agg acc atc acc acg ggt gcc			3241
Ile Asp Pro Asn Ile Arg Thr Gly Val Arg Thr Ile Thr Thr Gly Ala			
465	470	475	480
ccc atc acg tac tcc acc tat ggc aag ttt ctt gcc gac ggt ggt tgc			3289
Pro Ile Thr Tyr Ser Thr Tyr Gly Lys Phe Leu Ala Asp Gly Gly Cys			
485	490	495	
tct ggg ggc gcc tat gac atc ata ata tgt gat gag tgc cac tca act			3337
Ser Gly Gly Ala Tyr Asp Ile Ile Cys Asp Glu Cys His Ser Thr			
500	505	510	
gac tcg acc act atc ctg ggc atc ggc aca gtc ctg gac caa gcg gag			3385
Asp Ser Thr Thr Ile Leu Gly Ile Gly Thr Val Leu Asp Gln Ala Glu			
515	520	525	
acg gct gga gcg cga ctc gtc gtg ctc gcc acc gct acg cct ccg gga			3433
Thr Ala Gly Ala Arg Leu Val Val Leu Ala Thr Ala Thr Pro Pro Gly			
530	535	540	
tcg gtc acc gtg cca cat cca aac atc gag gag gtg gct ctg tcc agc			3481
Ser Val Thr Val Pro His Pro Asn Ile Glu Glu Val Ala Leu Ser Ser			
545	550	555	560
act gga gaa atc ccc ttt tat ggc aaa gcc atc ccc atc gag acc atc			3529
Thr Gly Glu Ile Pro Phe Tyr Gly Lys Ala Ile Pro Ile Glu Thr Ile			
565	570	575	
aag ggg ggg agg cac ctc att ttc tgc cat tcc aag aag aaa tgt gat			3577
Lys Gly Gly Arg His Leu Ile Phe Cys His Ser Lys Lys Lys Cys Asp			
580	585	590	
gag ctc gcc gcg aag ctg tcc ggc ctc gga ctc aat gct gta gca tat			3625
Glu Leu Ala Ala Lys Leu Ser Gly Leu Gly Leu Asn Ala Val Ala Tyr			
595	600	605	
tac cgg ggc ctt gat gta tcc gtc ata cca act agc gga gac gtc att			3673
Tyr Arg Gly Leu Asp Val Ser Val Ile Pro Thr Ser Gly Asp Val Ile			
610	615	620	
gtc gta gca acg gac gct cta atg acg ggc ttt acc ggc gat ttc gac			3721
Val Val Ala Thr Asp Ala Leu Met Thr Gly Phe Thr Gly Asp Phe Asp			
625	630	635	640

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ctg gac ccg acc ttc acc att gag acg acg acc gtg cca caa gac gcg Leu Asp Pro Thr Phe Thr Ile Glu Thr Thr Val Pro Gln Asp Ala 660 665 670	3817
gtg tca cgc tcg cag cgg cga ggc agg act ggt agg ggc agg atg ggc Val Ser Arg Ser Gln Arg Arg Gly Arg Thr Gly Arg Gly Arg Met Gly 675 680 685	3865
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Ile Ala Gly Ala Ala Val Gly Ser Ile Gly Leu Gly Lys Val Leu Val	
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Phe Lys Val Met Ser Gly Glu Met Pro Ser Thr Glu Asp Leu Val Asn	
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Leu Leu Pro Ala Ile Leu Ser Pro Gly Ala Leu Val Val Gly Val Val	

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cag tgg atg aac cg <sup>g</sup> ctg ata gc <sup>g</sup> ttc gct tcg cg <sup>g</sup> ggt aac cac gtc Gln Trp Met Asn Arg Leu Ile Ala Phe Ala Ser Arg Gly Asn His Val 1105	1110	1115	5161
tcc ccc acg cac tat gtg cct gag agc gac gct gca gca cgt gtc act Ser Pro Thr His Tyr Val Pro Glu Ser Asp Ala Ala Ala Arg Val Thr 1125	1130	1135	5209
cag atc ctc tct agt ctt acc atc act cag ctg ctg aag agg ctt cac Gln Ile Leu Ser Ser Leu Thr Ile Thr Gln Leu Leu Lys Arg Leu His 1140	1145	1150	5257
cag tgg atc aac gag gac tgc tcc acg cca tgc tcc ggc tcg tgg cta Gln Trp Ile Asn Glu Asp Cys Ser Thr Pro Cys Ser Gly Ser Trp Leu 1155	1160	1165	5305
aga gat gtt tgg gat tgg ata tgc acg gtg ttg act gat ttc aag acc Arg Asp Val Trp Asp Trp Ile Cys Thr Val Leu Thr Asp Phe Lys Thr 1170	1175	1180	5353
tgg ctc cag tcc aag ctc ctg ccg cga ttg ccg gga gtc ccc ttc ttc Trp Leu Gln Ser Lys Leu Leu Pro Arg Leu Pro Gly Val Pro Phe Phe 1185	1190	1195	5401
tca tgt caa cgt ggg tac aag gga gtc tgg ccg ggc gac ggc atc atg Ser Cys Gln Arg Gly Tyr Lys Gly Val Trp Arg Gly Asp Gly Ile Met 1205	1210	1215	5449
caa acc acc tgc cca tgt gga gca cag atc acc gga cat gtg aaa aac Gln Thr Thr Cys Pro Cys Gly Ala Gln Ile Thr Gly His Val Lys Asn 1220	1225	1230	5497
tgt tcc atg agg atc gtg ggg cct agg acc tgt agt aac acg tgg cat Cys Ser Met Arg Ile Val Gly Pro Arg Thr Cys Ser Asn Thr Trp His 1235	1240	1245	5545
gga aca ttc ccc att aac gc <sup>g</sup> tac acc acg ggc ccc tgc acg ccc tcc Gly Thr Phe Pro Ile Asn Ala Tyr Thr Gly Pro Cys Thr Pro Ser 1250	1255	1260	5593
ccg gc <sup>g</sup> cca aat tat tct agg gc <sup>g</sup> ctg tgg ccg gtg gct gct gag gag Pro Ala Pro Asn Tyr Ser Arg Ala Leu Trp Arg Val Ala Ala Glu Glu 1265	1270	1275	5641
tac gtg gag gtt acg cg <sup>g</sup> gtg ggg gat ttc cac tac gtg acg ggc atg Tyr Val Glu Val Thr Arg Val Gly Asp Phe His Tyr Val Thr Gly Met 1285	1290	1295	5689
acc act gac aac gta aag tgc ccg tgt cag gtt ccg gcc ccc gaa ttc			5737

Thr	Thr	Asp	Asn	Val	Lys	Cys	Pro	Cys	Gln	Val	Pro	Ala	Pro	Glu	Phe	
				1300			1305					1310				
ttc	aca	gaa	gtg	gat	ggg	gtg	cg	ttg	cac	agg	tac	gct	cca	gcg	tgc	5785
Phe	Thr	Glu	Val	Asp	Gly	Val	Arg	Leu	His	Arg	Tyr	Ala	Pro	Ala	Cys	
				1315			1320				1325					
aaa	ccc	ctc	cta	cg	gag	gag	gtc	aca	ttc	ctg	gtc	ggg	ctc	aat	caa	5833
Lys	Pro	Leu	Leu	Arg	Glu	Glu	Val	Thr	Phe	Leu	Val	Gly	Leu	Asn	Gln	
				1330			1335				1340					
tac	ctg	gtt	ggg	tca	cag	ctc	cca	tgc	gag	ccc	gaa	ccg	gac	gta	gca	5881
Tyr	Leu	Val	Gly	Ser	Gln	Leu	Pro	Cys	Glu	Pro	Glu	Pro	Asp	Val	Ala	
				1345			1350			1355			1360			
gtg	ctc	act	tcc	atg	ctc	acc	gac	ccc	tcc	cac	att	acg	gct	gag	acg	5929
Val	Leu	Thr	Ser	Met	Leu	Thr	Asp	Pro	Ser	His	Ile	Thr	Ala	Glu	Thr	
				1365			1370				1375					
gct	aag	cgt	agg	ctg	gcc	agg	gga	tct	ccc	tcc	ttg	gcc	agc	tca		5977
Ala	Lys	Arg	Arg	Leu	Ala	Arg	Gly	Ser	Pro	Pro	Ser	Leu	Ala	Ser	Ser	
				1380			1385				1390					
tca	gct	agc	cag	ctg	tct	gct	cct	tcc	ttg	aag	gca	aca	tgc	act	acc	6025
Ser	Ala	Ser	Gln	Leu	Ser	Ala	Pro	Ser	Leu	Lys	Ala	Thr	Cys	Thr	Thr	
				1395			1400				1405					
cgt	cat	gac	tcc	ccg	gac	gct	gac	ctc	atc	gag	gcc	aac	ctc	ctg	tgg	6073
Arg	His	Asp	Ser	Pro	Asp	Ala	Asp	Leu	Ile	Glu	Ala	Asn	Leu	Leu	Trp	
				1410			1415			1420						
cg	cag	gag	atg	ggc	ggg	aac	atc	acc	cg	gtg	gag	tca	gaa	aat	aag	6121
Arg	Gln	Glu	Met	Gly	Gly	Asn	Ile	Thr	Arg	Val	Glu	Ser	Glu	Asn	Lys	
				1425			1430			1435			1440			
gta	gta	att	ttg	gac	tct	ttc	gag	ccg	ctc	caa	gct	gag	gag	gat	gag	6169
Val	Val	Ile	Leu	Asp	Ser	Phe	Glu	Pro	Leu	Gln	Ala	Glu	Glu	Asp	Glu	
				1445			1450				1455					
agg	gaa	gta	tcc	gtt	ccg	gcg	gag	atc	ctg	cg	agg	tcc	agg	aaa	ttc	6217
Arg	Glu	Val	Ser	Val	Pro	Ala	Glu	Ile	Leu	Arg	Arg	Ser	Arg	Lys	Phe	
				1460			1465			1470						
cct	cga	gcg	atg	ccc	ata	tgg	gca	cgc	ccg	gat	tac	aac	cct	cca	ctg	6265
Pro	Arg	Ala	Met	Pro	Ile	Trp	Ala	Arg	Pro	Asp	Tyr	Asn	Pro	Pro	Leu	
				1475			1480				1485					
ttr	gag	tcc	tgg	aag	gac	ccg	gac	tac	gtc	cct	cca	gtg	gta	cac	ggg	6313
Xaa	Glu	Ser	Trp	Lys	Asp	Pro	Asp	Tyr	Val	Pro	Pro	Val	Val	His	Gly	
				1490			1495			1500						
tgt	cca	ttg	ccg	cct	gcc	aag	gcc	cct	ccg	ata	cca	cct	cca	cg	agg	6361
Cys	Pro	Leu	Pro	Pro	Ala	Lys	Ala	Pro	Pro	Ile	Pro	Pro	Pro	Arg	Arg	
				1505			1510			1515			1520			

aag agg acg gtt gtc ctg tca gaa tct acc gtg tct tct gcc ttg gcg Lys Arg Thr Val Val Leu Ser Glu Ser Thr Val Ser Ser Ala Leu Ala 1525 1530 1535	6409
gag ctc gcc aca aag acc ttc ggc agc tcc gaa tcg tcg gcc gtc gac Glu Leu Ala Thr Lys Thr Phe Gly Ser Ser Glu Ser Ser Ala Val Asp 1540 1545 1550	6457
agc ggc acg gca acg gcc tct cct gac cag ccc tcc gac gac ggc gac Ser Gly Thr Ala Thr Ala Ser Pro Asp Gln Pro Ser Asp Asp Gly Asp 1555 1560 1565	6505
gcg gga tcc gac gtt gag tcg tac tcc tcc atg ccc ccc ctt gag ggg Ala Gly Ser Asp Val Glu Ser Tyr Ser Ser Met Pro Pro Leu Glu Gly 1570 1575 1580	6553
gag ccg ggg gat ccc gat ctc agc gac ggg tct tgg tct acc gta agc Glu Pro Gly Asp Pro Asp Leu Ser Asp Gly Ser Trp Ser Thr Val Ser 1585 1590 1595 1600	6601
gag gag gct agt gag gac gtc gtc tgc tcg atg tcc tac aca tgg Glu Glu Ala Ser Glu Asp Val Val Cys Cys Ser Met Ser Tyr Thr Trp 1605 1610 1615	6649
aca ggc gcc ctg atc acg cca tgc gct gcg gag gaa acc aag ctg ccc Thr Gly Ala Leu Ile Thr Pro Cys Ala Ala Glu Glu Thr Lys Leu Pro 1620 1625 1630	6697
atc aat gca ctg agc aac tct ttg ctc cgt cac cac aac ttg gtc tat Ile Asn Ala Leu Ser Asn Ser Leu Leu Arg His His Asn Leu Val Tyr 1635 1640 1645	6745
gct aca aca tct cgc agc gca agc ctg cgg cag aag aag gtc acc ttt Ala Thr Thr Ser Arg Ser Ala Ser Leu Arg Gln Lys Lys Val Thr Phe 1650 1655 1660	6793
gac aga ctg cag gtc ctg gac gac cac tac cgg gac gtg ctc aag gag Asp Arg Leu Gln Val Leu Asp Asp His Tyr Arg Asp Val Leu Lys Glu 1665 1670 1675 1680	6841
atg aag gcg aag gcg tcc aca gtt aag gct aaa ctt cta tcc gtg gag Met Lys Ala Lys Ala Ser Thr Val Lys Ala Lys Leu Leu Ser Val Glu 1685 1690 1695	6889
gaa gcc tgt aag ctg acg ccc cca cat tcg gcc aga tct aaa ttt ggc Glu Ala Cys Lys Leu Thr Pro Pro His Ser Ala Arg Ser Lys Phe Gly 1700 1705 1710	6937
tat ggg gca aag gac gtc cgg aac cta tcc agc aag gcc gtt aac cac Tyr Gly Ala Lys Asp Val Arg Asn Leu Ser Ser Lys Ala Val Asn His 1715 1720 1725	6985
atc cgc tcc gtg tgg aag gac ttg .ctg gaa gac act gag aca cca att Ile Arg Ser Val Trp Lys Asp Leu Leu Glu Asp Thr Glu Thr Pro Ile 1730 1735 1740	7033

gac acc acc atc atg gca aaa aat gag gtt ttc tgc gtc caa cca gag	7081
Asp Thr Thr Ile Met Ala Lys Asn Glu Val Phe Cys Val Gln Pro Glu	
1745 1750 1755 1760	
aag ggg ggc cgc aag cca gct cgc ctt atc gta ttc cca gat ttg ggg	7129
Lys Gly Gly Arg Lys Pro Ala Arg Leu Ile Val Phe Pro Asp Leu Gly	
1765 1770 1775	
gtt cgt gtg tgc gag aaa atg gcc ctt tac gat gtg gtc tcc acc ctc	7177
Val Arg Val Cys Glu Lys Met Ala Leu Tyr Asp Val Val Ser Thr Leu	
1780 1785 1790	
cct cag gcc gtg atg ggc tct tca tac gga ttc caa tac tct cct gga	7225
Pro Gln Ala Val Met Gly Ser Ser Tyr Gly Phe Gln Tyr Ser Pro Gly	
1795 1800 1805	
cag cgg gtc gag ttc ctg gtg aat gcc tgg aaa gcg aag aaa tgc cct	7273
Gln Arg Val Glu Phe Leu Val Asn Ala Trp Lys Ala Lys Lys Cys Pro	
1810 1815 1820	
atg ggc ttc gca tat gac acc cgc tgt ttt gac tca acg gtc act gag	7321
Met Gly Phe Ala Tyr Asp Thr Arg Cys Phe Asp Ser Thr Val Thr Glu	
1825 1830 1835 1840	
aat gac atc cgt gtt gag gag tca atc tac caa tgt tgt gac ttg gcc	7369
Asn Asp Ile Arg Val Glu Glu Ser Ile Tyr Gln Cys Cys Asp Leu Ala	
1845 1850 1855	
ccc gaa gcc aga cag gcc ata agg tcg ctc aca gag cgg ctt tac atc	7417
Pro Glu Ala Arg Gln Ala Ile Arg Ser Leu Thr Glu Arg Leu Tyr Ile	
1860 1865 1870	
ggg ggc ccc ctg act aat tct aaa ggg cag aac tgc ggc tat cgc cgg	7465
Gly Gly Pro Leu Thr Asn Ser Lys Gly Gln Asn Cys Gly Tyr Arg Arg	
1875 1880 1885	
tgc cgc gcg agc ggt gta ctg acg acc agc tgc ggt aat acc ctc aca	7513
Cys Arg Ala Ser Gly Val Leu Thr Thr Ser Cys Gly Asn Thr Leu Thr	
1890 1895 1900	
tgt tac ttg aag gcc gct gcg gcc tgt cga gct gcg aag ctc cag gac	7561
Cys Tyr Leu Lys Ala Ala Ala Cys Arg Ala Ala Lys Leu Gln Asp	
1905 1910 1915 1920	
tgc acg atg ctc gta tgc gga gac gac ctt gtc gtt atc tgt gaa agc	7609
Cys Thr Met Leu Val Cys Gly Asp Asp Leu Val Val Ile Cys Glu Ser	
1925 1930 1935	
gcg ggg acc caa gag gac gag gcg agc cta cgg gcc ttc acg gag gct	7657
Ala Gly Thr Gln Glu Asp Glu Ala Ser Leu Arg Ala Phe Thr Glu Ala	
1940 1945 1950	
atg act aga tac tct gcc ccc cct ggg gac cgc ccc aaa cca gaa tac	7705
Met Thr Arg Tyr Ser Ala Pro Pro Gly Asp Pro Pro Lys Pro Glu Tyr	

1955	1960	1965	
gac ttg gag ttg ata aca tca tgc tcc tcc aat gtg tca gtc gcg cac Asp Leu Glu Leu Ile Thr Ser Cys Ser Ser Asn Val Ser Val Ala His 1970	1975	1980	7753
gat gca tct ggc aaa agg gtg tac tat ctc acc cgt gac ccc acc acc Asp Ala Ser Gly Lys Arg Val Tyr Tyr Leu Thr Arg Asp Pro Thr Thr 1985	1990	1995	7801
ccc ctt gcg cgg gct gcg tgg gag aca gct aga cac act cca gtc aat Pro Leu Ala Arg Ala Ala Trp Glu Thr Ala Arg His Thr Pro Val Asn 2005	2010	2015	7849
tcc tgg cta ggc aac atc atc atg tat gcg ccc acc ttg tgg gca agg Ser Trp Leu Gly Asn Ile Ile Met Tyr Ala Pro Thr Leu Trp Ala Arg 2020	2025	2030	7897
atg atc ctg atg act cat ttc ttc tcc atc ctt cta gct cag gaa caa Met Ile Leu Met Thr His Phe Phe Ser Ile Leu Leu Ala Gln Glu Gln 2035	2040	2045	7945
ctt gaa aaa gcc cta gat tgt cag atc tac ggg gcc tgt tac tcc att Leu Glu Lys Ala Leu Asp Cys Gln Ile Tyr Gly Ala Cys Tyr Ser Ile 2050	2055	2060	7993
gag cca ctt gac cta cct cag atc att caa cga ctc cac ggc ctt agc Glu Pro Leu Asp Leu Pro Gln Ile Ile Gln Arg Leu His Gly Leu Ser 2065	2070	2075	8041
gca ttt tca ctc cat agt tac tct cca ggt gag atc aat agg gtg gct Ala Phe Ser Leu His Ser Tyr Ser Pro Gly Glu Ile Asn Arg Val Ala 2085	2090	2095	8089
tca tgc ctc agg aaa ctt ggg gta ccg ccc ttg cga gtc tgg aga cat Ser Cys Leu Arg Lys Leu Gly Val Pro Pro Leu Arg Val Trp Arg His 2100	2105	2110	8137
cg <sup>g</sup> gcc aga agt gtc cgc gct agg cta ctg tcc cag ggg ggg agg gct Arg Ala Arg Ser Val Arg Ala Arg Leu Leu Ser Gln Gly Gly Arg Ala 2115	2120	2125	8185
gcc act tgt ggc aag tac ctc ttc aac ttg gca gta agg acc aag ctc Ala Thr Cys Gly Lys Tyr Leu Phe Asn Trp Ala Val Arg Thr Lys Leu 2130	2135	2140	8233
aaa ctc act cca atc ccg gct gcg tcc cag ttg gat tta tcc agc tgg Lys Leu Thr Pro Ile Pro Ala Ala Ser Gln Leu Asp Leu Ser Ser Trp 2145	2150	2155	8281
ttc gtt gct ggt tac agc ggg gga gac ata tat cac agc ctg tct cgt Phe Val Ala Gly Tyr Ser Gly Gly Asp Ile Tyr His Ser Leu Ser Arg 2165	2170	2175	8329
gcc cga ccc cgc tgg ttc atg tgg tgc cta ctc cta ctt tct gta ggg			8377

Ala Arg Pro Arg Trp Phe Met Trp Cys Leu Leu Leu Leu Ser Val Gly			
2180	2185	2190	
gta ggc atc tat cta ctc ccc aac cga tga acggggagct aaacactcca		8427	
Val Gly Ile Tyr Leu Leu Pro Asn Arg *			
2195	2200		
ggccaatagg ccatcctgtt ttttccctt tttttttt ttttttttc ttttttttt 8487			
ttttttttt ttttttttc tcctttttt tcctctttt ttccctttct ttccctttgt 8547			
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<223> Xaa is Leu			
<400> 3			
Met Asp Arg Glu Met Ala Ala Ser Cys Gly Gly Ala Val Phe Val Gly			
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Leu Ile Leu Leu Thr Leu Ser Pro His Tyr Lys Leu Phe Leu Ala Arg			
20	25	30	
Leu Ile Trp Trp Leu Gln Tyr Phe Ile Thr Arg Ala Glu Ala His Leu			
35	40	45	
Gln Val Trp Ile Pro Pro Leu Asn Val Arg Gly Gly Arg Asp Ala Val			
50	55	60	
Ile Leu Leu Thr Cys Ala Ile His Pro Glu Leu Ile Phe Thr Ile Thr			
65	70	75	80
Lys Ile Leu Leu Ala Ile Leu Gly Pro Leu Met Val Leu Gln Ala Gly			
85	90	95	
Ile Thr Lys Val Pro Tyr Phe Val Arg Ala His Gly Leu Ile Arg Ala			
100	105	110	
Cys Met Leu Val Arg Lys Val Ala Gly Gly His Tyr Val Gln Met Ala			
115	120	125	
Leu Met Lys Leu Ala Ala Leu Thr Gly Thr Tyr Val Tyr Asp His Leu			
130	135	140	
Thr Pro Leu Arg Asp Trp Ala His Ala Gly Leu Arg Asp Leu Ala Val			
145	150	155	160
Ala Val Glu Pro Val Val Phe Ser Asp Met Glu Thr Lys Val Ile Thr			
165	170	175	
Trp Gly Ala Asp Thr Ala Ala Cys Gly Asp Ile Ile Leu Gly Leu Pro			
180	185	190	
Val Ser Ala Arg Arg Gly Arg Glu Ile His Leu Gly Pro Ala Asp Ser			
195	200	205	
Leu Glu Gly Gln Gly Trp Arg Leu Leu Ala Pro Ile Thr Ala Tyr Ser			
210	215	220	

Gln Gln Thr Arg Gly Leu Leu Gly Cys Ile Ile Thr Ser Leu Thr Gly  
 225 230 235 240  
 Arg Asp Arg Asn Gln Val Glu Gly Glu Val Gln Val Val Ser Thr Ala  
 245 250 255  
 Thr Gln Ser Phe Leu Ala Thr Cys Val Asn Gly Val Cys Trp Thr Val  
 260 265 270  
 Tyr His Gly Ala Gly Ser Lys Thr Leu Ala Gly Pro Lys Gly Pro Ile  
 275 280 285  
 Thr Gln Met Tyr Thr Asn Val Asp Gln Asp Leu Val Gly Trp Gln Ala  
 290 295 300  
 Pro Pro Gly Ala Arg Ser Leu Thr Pro Cys Thr Cys Gly Ser Ser Asp  
 305 310 315 320  
 Leu Tyr Leu Val Thr Arg His Ala Asp Val Ile Pro Val Arg Arg Arg  
 325 330 335  
 Gly Asp Ser Arg Gly Ser Leu Leu Ser Pro Arg Pro Val Ser Tyr Leu  
 340 345 350  
 Lys Gly Ser Ser Gly Gly Pro Leu Leu Cys Pro Ser Gly His Ala Val  
 355 360 365  
 Gly Ile Phe Arg Ala Ala Val Cys Thr Arg Gly Val Ala Lys Ala Val  
 370 375 380  
 Asp Phe Val Pro Val Glu Ser Met Glu Thr Thr Met Arg Ser Pro Val  
 385 390 395 400  
 Phe Thr Asp Asn Ser Ser Pro Pro Ala Val Pro Gln Thr Phe Gln Val  
 405 410 415  
 Ala His Leu His Ala Pro Thr Gly Ser Gly Lys Ser Thr Lys Val Pro  
 420 425 430  
 Ala Ala Tyr Ala Ala Gln Gly Tyr Lys Val Leu Val Leu Asn Pro Ser  
 435 440 445  
 Val Ala Ala Thr Leu Gly Phe Gly Ala Tyr Met Ser Lys Ala His Gly  
 450 455 460  
 Ile Asp Pro Asn Ile Arg Thr Gly Val Arg Thr Ile Thr Thr Gly Ala  
 465 470 475 480  
 Pro Ile Thr Tyr Ser Thr Tyr Gly Lys Phe Leu Ala Asp Gly Gly Cys  
 485 490 495  
 Ser Gly Gly Ala Tyr Asp Ile Ile Cys Asp Glu Cys His Ser Thr  
 500 505 510  
 Asp Ser Thr Thr Ile Leu Gly Ile Gly Thr Val Leu Asp Gln Ala Glu  
 515 520 525  
 Thr Ala Gly Ala Arg Leu Val Val Leu Ala Thr Ala Thr Pro Pro Gly  
 530 535 540  
 Ser Val Thr Val Pro His Pro Asn Ile Glu Glu Val Ala Leu Ser Ser  
 545 550 555 560  
 Thr Gly Glu Ile Pro Phe Tyr Gly Lys Ala Ile Pro Ile Glu Thr Ile  
 565 570 575  
 Lys Gly Gly Arg His Leu Ile Phe Cys His Ser Lys Lys Lys Cys Asp  
 580 585 590  
 Glu Leu Ala Ala Lys Leu Ser Gly Leu Gly Leu Asn Ala Val Ala Tyr  
 595 600 605  
 Tyr Arg Gly Leu Asp Val Ser Val Ile Pro Thr Ser Gly Asp Val Ile  
 610 615 620  
 Val Val Ala Thr Asp Ala Leu Met Thr Gly Phe Thr Gly Asp Phe Asp  
 625 630 635 640  
 Ser Val Ile Asp Cys Asn Thr Cys Val Thr Gln Thr Val Asp Phe Ser  
 645 650 655  
 Leu Asp Pro Thr Phe Thr Ile Glu Thr Thr Val Pro Gln Asp Ala

660	665	670	
Val Ser Arg Ser Gln Arg Arg Gly Arg Thr Gly Arg Gly Arg Met Gly			
675	680	685	
Ile Tyr Arg Phe Val Thr Pro Gly Glu Arg Pro Ser Gly Met Phe Asp			
690	695	700	
Ser Ser Val Leu Cys Glu Cys Tyr Asp Ala Gly Cys Ala Trp Tyr Glu			
705	710	715	720
Leu Thr Pro Ala Glu Thr Ser Val Arg Leu Arg Ala Tyr Leu Asn Thr			
725	730	735	
Pro Gly Leu Pro Val Cys Gln Asp His Leu Glu Phe Trp Glu Ser Val			
740	745	750	
Phe Thr Gly Leu Thr His Ile Asp Ala His Phe Leu Ser Gln Thr Lys			
755	760	765	
Gln Ala Gly Asp Asn Phe Pro Tyr Leu Val Ala Tyr Gln Ala Thr Val			
770	775	780	
Cys Ala Arg Ala Gln Ala Pro Pro Pro Ser Trp Asp Gln Met Trp Lys			
785	790	795	800
Cys Leu Ile Arg Leu Lys Pro Thr Leu His Gly Pro Thr Pro Leu Leu			
805	810	815	
Tyr Arg Leu Gly Ala Val Gln Asn Glu Val Thr Thr Thr His Pro Ile			
820	825	830	
Thr Lys Tyr Ile Met Ala Cys Met Ser Ala Asp Leu Glu Val Val Thr			
835	840	845	
Ser Thr Trp Val Leu Val Gly Gly Val Leu Ala Ala Leu Ala Ala Tyr			
850	855	860	
Cys Leu Thr Thr Gly Ser Val Val Ile Val Gly Arg Ile Ile Leu Ser			
865	870	875	880
Gly Xaa Pro Ala Ile Ile Pro Asp Arg Glu Val Leu Tyr Arg Glu Phe			
885	890	895	
Asp Glu Met Glu Glu Cys Ala Ser His Leu Pro Tyr Ile Glu Gln Gly			
900	905	910	
Met Gln Leu Ala Glu Gln Phe Lys Gln Lys Ala Ile Gly Leu Leu Gln			
915	920	925	
Thr Ala Thr Lys Gln Ala Glu Ala Ala Ala Pro Val Val Glu Ser Lys			
930	935	940	
Trp Arg Thr Leu Glu Ala Phe Trp Ala Lys His Met Trp Asn Phe Ile			
945	950	955	960
Ser Gly Ile Gln Tyr Leu Ala Gly Leu Ser Thr Leu Pro Gly Asn Pro			
965	970	975	
Ala Ile Ala Ser Leu Met Ala Phe Thr Ala Ser Ile Thr Ser Pro Leu			
980	985	990	
Thr Thr Gln His Thr Leu Leu Phe Asn Ile Leu Gly Gly Trp Val Ala			
995	1000	1005	
Ala Gln Leu Ala Pro Pro Ser Ala Ala Ser Ala Phe Val Gly Ala Gly			
1010	1015	1020	
Ile Ala Gly Ala Ala Val Gly Ser Ile Gly Leu Gly Lys Val Leu Val			
1025	1030	1035	1040
Asp Ile Leu Ala Gly Tyr Gly Ala Gly Val Ala Gly Ala Leu Val Ala			
1045	1050	1055	
Phe Lys Val Met Ser Gly Glu Met Pro Ser Thr Glu Asp Leu Val Asn			
1060	1065	1070	
Leu Leu Pro Ala Ile Leu Ser Pro Gly Ala Leu Val Val Gly Val Val			
1075	1080	1085	
Cys Ala Ala Ile Leu Arg Arg His Val Gly Pro Gly Glu Gly Ala Val			
1090	1095	1100	

Gln Trp Met Asn Arg Leu Ile Ala Phe Ala Ser Arg Gly Asn His Val  
 1105 1110 1115 1120  
 Ser Pro Thr His Tyr Val Pro Glu Ser Asp Ala Ala Ala Arg Val Thr  
 1125 1130 1135  
 Gln Ile Leu Ser Ser Leu Thr Ile Thr Gln Leu Leu Lys Arg Leu His  
 1140 1145 1150  
 Gln Trp Ile Asn Glu Asp Cys Ser Thr Pro Cys Ser Gly Ser Trp Leu  
 1155 1160 1165  
 Arg Asp Val Trp Asp Trp Ile Cys Thr Val Leu Thr Asp Phe Lys Thr  
 1170 1175 1180  
 Trp Leu Gln Ser Lys Leu Leu Pro Arg Leu Pro Gly Val Pro Phe Phe  
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 Ser Cys Gln Arg Gly Tyr Lys Gly Val Trp Arg Gly Asp Gly Ile Met  
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 Gln Thr Thr Cys Pro Cys Gly Ala Gln Ile Thr Gly His Val Lys Asn  
 1220 1225 1230  
 Cys Ser Met Arg Ile Val Gly Pro Arg Thr Cys Ser Asn Thr Trp His  
 1235 1240 1245  
 Gly Thr Phe Pro Ile Asn Ala Tyr Thr Thr Gly Pro Cys Thr Pro Ser  
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 Pro Ala Pro Asn Tyr Ser Arg Ala Leu Trp Arg Val Ala Ala Glu Glu  
 1265 1270 1275 1280  
 Tyr Val Glu Val Thr Arg Val Gly Asp Phe His Tyr Val Thr Gly Met  
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 Thr Thr Asp Asn Val Lys Cys Pro Cys Gln Val Pro Ala Pro Glu Phe  
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 Phe Thr Glu Val Asp Gly Val Arg Leu His Arg Tyr Ala Pro Ala Cys  
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 Lys Pro Leu Leu Arg Glu Glu Val Thr Phe Leu Val Gly Leu Asn Gln  
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 Tyr Leu Val Gly Ser Gln Leu Pro Cys Glu Pro Glu Pro Asp Val Ala  
 1345 1350 1355 1360  
 Val Leu Thr Ser Met Leu Thr Asp Pro Ser His Ile Thr Ala Glu Thr  
 1365 1370 1375  
 Ala Lys Arg Arg Leu Ala Arg Gly Ser Pro Pro Ser Leu Ala Ser Ser  
 1380 1385 1390  
 Ser Ala Ser Gln Leu Ser Ala Pro Ser Leu Lys Ala Thr Cys Thr Thr  
 1395 1400 1405  
 Arg His Asp Ser Pro Asp Ala Asp Leu Ile Glu Ala Asn Leu Leu Trp  
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 Arg Gln Glu Met Gly Gly Asn Ile Thr Arg Val Glu Ser Glu Asn Lys  
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 Arg Glu Val Ser Val Pro Ala Glu Ile Leu Arg Arg Ser Arg Lys Phe  
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 Pro Arg Ala Met Pro Ile Trp Ala Arg Pro Asp Tyr Asn Pro Pro Leu  
 1475 1480 1485  
 Xaa Glu Ser Trp Lys Asp Pro Asp Tyr Val Pro Pro Val Val His Gly  
 1490 1495 1500  
 Cys Pro Leu Pro Pro Ala Lys Ala Pro Pro Ile Pro Pro Pro Arg Arg  
 1505 1510 1515 1520  
 Lys Arg Thr Val Val Leu Ser Glu Ser Thr Val Ser Ser Ala Leu Ala  
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Thr Gly Ala Leu Ile Thr Pro Cys Ala Ala Glu Glu Thr Lys Leu Pro		
1620	1625	1630
Ile Asn Ala Leu Ser Asn Ser Leu Leu Arg His His Asn Leu Val Tyr		
1635	1640	1645
Ala Thr Thr Ser Arg Ser Ala Ser Leu Arg Gln Lys Lys Val Thr Phe		
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Asp Arg Leu Gln Val Leu Asp Asp His Tyr Arg Asp Val Leu Lys Glu		
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Met Lys Ala Lys Ala Ser Thr Val Lys Ala Lys Leu Leu Ser Val Glu		
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Glu Ala Cys Lys Leu Thr Pro Pro His Ser Ala Arg Ser Lys Phe Gly		
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Tyr Gly Ala Lys Asp Val Arg Asn Leu Ser Ser Lys Ala Val Asn His		
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Ile Arg Ser Val Trp Lys Asp Leu Leu Glu Asp Thr Glu Thr Pro Ile		
1730	1735	1740
Asp Thr Thr Ile Met Ala Lys Asn Glu Val Phe Cys Val Gln Pro Glu		
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Lys Gly Gly Arg Lys Pro Ala Arg Leu Ile Val Phe Pro Asp Leu Gly		
1765	1770	1775
Val Arg Val Cys Glu Lys Met Ala Leu Tyr Asp Val Val Ser Thr Leu		
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Pro Gln Ala Val Met Gly Ser Ser Tyr Gly Phe Gln Tyr Ser Pro Gly		
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Gln Arg Val Glu Phe Leu Val Asn Ala Trp Lys Ala Lys Lys Cys Pro		
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Met Gly Phe Ala Tyr Asp Thr Arg Cys Phe Asp Ser Thr Val Thr Glu		
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Asn Asp Ile Arg Val Glu Glu Ser Ile Tyr Gln Cys Cys Asp Leu Ala		
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Pro Glu Ala Arg Gln Ala Ile Arg Ser Leu Thr Glu Arg Leu Tyr Ile		
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Gly Gly Pro Leu Thr Asn Ser Lys Gly Gln Asn Cys Gly Tyr Arg Arg		
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Cys Arg Ala Ser Gly Val Leu Thr Thr Ser Cys Gly Asn Thr Leu Thr		
1890	1895	1900
Cys Tyr Leu Lys Ala Ala Ala Cys Arg Ala Ala Lys Leu Gln Asp		
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Cys Thr Met Leu Val Cys Gly Asp Asp Leu Val Val Ile Cys Glu Ser		
1925	1930	1935
Ala Gly Thr Gln Glu Asp Glu Ala Ser Leu Arg Ala Phe Thr Glu Ala		
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1				5							10				15	
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Leu	Ile	Leu	Leu	Thr	Leu	Ser	Pro	His	Tyr	Lys	Leu	Phe	Leu	Ala	Arg	
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ctc	ata	tgg	tgg	tta	caa	tat	ttt	atc	acc	agg	gcc	gag	gca	cac	ttg	1945
Leu	Ile	Trp	Trp	Leu	Gln	Tyr	Phe	Ile	Thr	Arg	Ala	Glu	Ala	His	Leu	
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caa	gtg	tgg	atc	ccc	ccc	ctc	aac	gtt	cgg	ggg	ggc	cgc	gat	gcc	gtc	1993
Gln	Val	Trp	Ile	Pro	Pro	Leu	Asn	Val	Arg	Gly	Gly	Arg	Asp	Ala	Val	
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atc	ctc	ctc	acg	tgc	gct	atc	cac	cca	gag	cta	atc	ttt	acc	atc	acc	2041
Ile	Leu	Leu	Thr	Cys	Ala	Ile	His	Pro	Glu	Leu	Ile	Phe	Thr	Ile	Thr	
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aaa	atc	ttg	ctc	gcc	ata	ctc	ggt	cca	ctc	atg	gtg	ctc	cag	gct	ggt	2089
Lys	Ile	Leu	Leu	Ala	Ile	Leu	Gly	Pro	Leu	Met	Val	Leu	Gln	Ala	Gly	
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ata	acc	aaa	gtg	ccg	tac	ttc	gtg	cgc	gca	cac	ggg	ctc	att	cgt	gca	2137
Ile	Thr	Lys	Val	Pro	Tyr	Phe	Val	Arg	Ala	His	Gly	Leu	Ile	Arg	Ala	
100					105									110		
tgc	atg	ctg	gtg	cgg	aag	gtt	gct	ggg	ggt	cat	tat	gtc	caa	atg	gct	2185
Cys	Met	Leu	Val	Arg	Lys	Val	Ala	Gly	Gly	Gly	His	Tyr	Val	Gln	Met	Ala
115					120									125		
ctc	atg	aag	ttg	gcc	gca	ctg	aca	ggt	acg	tac	gtt	tat	gac	cat	ctc	2233
Leu	Met	Lys	Leu	Ala	Ala	Leu	Thr	Gly	Thr	Tyr	Val	Tyr	Asp	His	Leu	
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acc	cca	ctg	cgg	gac	tgg	gcc	cac	gct	gca	cga	gac	ctt	gct	gtg	2281	
Thr	Pro	Leu	Arg	Asp	Trp	Ala	His	Ala	Gly	Leu	Arg	Asp	Leu	Ala	Val	
145					150									155		
														160		

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ctt gaa ggg cag ggg tgg cga ctc ctc gcg cct att acg gcc tac tcc Leu Glu Gly Gln Gly Trp Arg Leu Leu Ala Pro Ile Thr Ala Tyr Ser 210 215 220	2473
caa cag acg cga ggc cta ctt ggc tgc atc atc act agc ctc aca ggc Gln Gln Thr Arg Gly Leu Leu Gly Cys Ile Ile Thr Ser Leu Thr Gly 225 230 235 240	2521
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Asp Phe Val Pro Val Glu Ser Met Glu Thr Thr Met Arg Ser Pro Val	
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Ala His Leu His Ala Pro Thr Gly Ser Gly Lys Ser Thr Lys Val Pro	
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Ala Ala Tyr Ala Ala Gln Gly Tyr Lys Val Leu Val Leu Asn Pro Ser	
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Val Ala Ala Thr Leu Gly Phe Gly Ala Tyr Met Ser Lys Ala His Gly	
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Ile Asp Pro Asn Ile Arg Thr Gly Val Arg Thr Ile Thr Thr Gly Ala	
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Pro Ile Thr Tyr Ser Thr Tyr Gly Lys Phe Leu Ala Asp Gly Gly Cys	
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Ser Gly Gly Ala Tyr Asp Ile Ile Ile Cys Asp Glu Cys His Ser Thr	
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Ser Val Thr Val Pro His Pro Asn Ile Glu Glu Val Ala Leu Ser Ser	
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Thr Gly Glu Ile Pro Phe Tyr Gly Lys Ala Ile Pro Ile Glu Thr Ile	
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Lys Gly Gly Arg His Leu Ile Phe Cys His Ser Lys Lys Lys Cys Asp	
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Glu Leu Ala Ala Lys Leu Ser Gly Leu Gly Leu Asn Ala Val Ala Tyr	

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Arg	Arg	Gly	
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Val	Val	Ala	
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Asp	Thr	Asp	
Ser	Leu	Met	
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Asn	Asp	Thr	
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Asp	Cys	Asn	
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Asp	Pro	Thr	
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Asp	Thr	Ile	
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Asp	Pro	Thr	
705	710	715	
Asp	Cys	Tyr	
720			
Asp	Arg	Arg	
725	730	735	
Asp	Pro	Ala	
740	745	750	
Asp	Val	Cys	
755	760	765	
Asp	Asn	Arg	
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Asp	Phe	Tyr	
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Asp	Pro	Pro	
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Asp	Thr	Pro	
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Asp	Leu	Leu	
995	1000	1005	

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acc aaa tac atc atg gca tgc atg tcg gct gac ctg gag gtc gtc acg				4345
Thr Lys Tyr Ile Met Ala Cys Met Ser Ala Asp Leu Glu Val Val Thr	835	840	845	
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agc acc tgg gtg ctg gta ggc gga gtc cta gca gct ctg gcc gcg tat				4393
Ser Thr Trp Val Leu Val Gly Gly Val Leu Ala Ala Leu Ala Ala Tyr				
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Cys Leu Thr Thr Gly Ser Val Val Ile Val Gly Arg Ile Ile Leu Ser				
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gga agg ccg gcc atc att ccc gac agg gaa gtc ctt tac cgg gag ttc				4489
Gly Arg Pro Ala Ile Ile Pro Asp Arg Glu Val Leu Tyr Arg Glu Phe				
885	890	895		
gat gag atg gaa gag tgc gcc tca cac ctc cct tac atc gaa cag gga				4537
Asp Glu Met Glu Glu Cys Ala Ser His Leu Pro Tyr Ile Glu Gln Gly				
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Met Gln Leu Ala Glu Gln Phe Lys Gln Lys Ala Ile Gly Leu Leu Gln				
915	920	925		
aca gcc acc aag caa gcg gag gct gct ccc gtg gtg gaa tcc aag				4633
Thr Ala Thr Lys Gln Ala Glu Ala Ala Ala Pro Val Val Glu Ser Lys				
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Trp Arg Thr Leu Glu Ala Phe Trp Ala Lys His Met Trp Asn Phe Ile				
945	950	955	960	
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Ser Gly Ile Gln Tyr Leu Ala Gly Leu Ser Thr Leu Pro Gly Asn Pro				
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Ala Ile Ala Ser Leu Met Ala Phe Thr Ala Ser Ile Thr Ser Pro Leu				
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Thr Thr Gln His Thr Leu Leu Phe Asn Ile Leu Gly Gly Trp Val Ala				
995	1000	1005		
gcc caa ctt gct cct ccc agc gct gct tcc gct ttc gta ggc gcc ggc				4873
Ala Gln Leu Ala Pro Pro Ser Ala Ala Ser Ala Phe Val Gly Ala Gly				
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Ile Ala Gly Ala Ala Val Gly Ser Ile Gly Leu Gly Lys Val Leu Val				
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Phe Lys Val Met Ser Gly Glu Met Pro Ser Thr Glu Asp Leu Val Asn	
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Leu Leu Pro Ala Ile Leu Ser Pro Gly Ala Leu Val Val Gly Val Val	
1075 1080 1085	
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Cys Ala Ala Ile Leu Arg Arg His Val Gly Pro Gly Glu Gly Ala Val	
1090 1095 1100	
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Gln Trp Met Asn Arg Leu Ile Ala Phe Ala Ser Arg Gly Asn His Val	
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Ser Pro Thr His Tyr Val Pro Glu Ser Asp Ala Ala Ala Arg Val Thr	
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Arg Glu Val Ser Val Pro Ala Glu Ile Leu Arg Arg Ser Arg Lys Phe	
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Pro Arg Ala Met Pro Ile Trp Ala Arg Pro Asp Tyr Asn Pro Pro Leu	

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gag ccg ggg gat ccc gat ctc agc gac ggg tct tgg tct acc gta agc Glu Pro Gly Asp Pro Asp Leu Ser Asp Gly Ser Trp Ser Thr Val Ser 1585	1590	1595	6601
gag gag gct agt gag gac gtc gtc tgc tcg atg tcc tac aca tgg Glu Glu Ala Ser Glu Asp Val Val Cys Cys Ser Met Ser Tyr Thr Trp 1605	1610	1615	6649
acg ggc gcc ctg atc acg cca tgc gct gcg gag gaa acc aag ctg ccc Thr Gly Ala Leu Ile Thr Pro Cys Ala Ala Glu Glu Thr Lys Leu Pro 1620	1625	1630	6697
atc aat gca ctg agc aac tct ttg ctc cgt cac cac aac ttg gtc tat Ile Asn Ala Leu Ser Asn Ser Leu Leu Arg His His Asn Leu Val Tyr 1635	1640	1645	6745
gct aca aca tct cgc agc gca agc ctg cgg cag aag aag gtc acc ttt Ala Thr Thr Ser Arg Ser Ala Ser Leu Arg Gln Lys Lys Val Thr Phe 1650	1655	1660	6793
gac aga ctg cag gtc ctg gac gac cac tac cgg gac gtg ctc aag gag Asp Arg Leu Gln Val Leu Asp Asp His Tyr Arg Asp Val Leu Lys Glu 1665	1670	1675	6841
atg aag gcg aag gcg tcc aca gtt aag gct aaa ctt cta tcc gtg gag Met Lys Ala Lys Ala Ser Thr Val Lys Ala Lys Leu Leu Ser Val Glu 1685	1690	1695	6889
gaa gcc tgt aag ctg acg ccc cca cat tcg gcc aga tct aaa ttt ggc			6937

Glu Ala Cys Lys Leu Thr Pro Pro His Ser Ala Arg Ser Lys Phe Gly			
1700	1705	1710	
tat ggg gca aag gac gtc cgg aac cta tcc agc aag gcc gtt aac cac		6985	
Tyr Gly Ala Lys Asp Val Arg Asn Leu Ser Ser Lys Ala Val Asn His			
1715	1720	1725	
atc cgc tcc gtg tgg aag gac ttg ctg gaa gac act gag aca cca att		7033	
Ile Arg Ser Val Trp Lys Asp Leu Leu Glu Asp Thr Glu Thr Pro Ile			
1730	1735	1740	
gac acc acc atc atg gca aaa aat gag gtt ttc tgc gtc caa cca gag		7081	
Asp Thr Thr Ile Met Ala Lys Asn Glu Val Phe Cys Val Gln Pro Glu			
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Lys Gly Gly Arg Lys Pro Ala Arg Leu Ile Val Phe Pro Asp Leu Gly			
1765	1770	1775	
gtt cgt gtg tgc gag aaa atg gcc ctt tac gat gtg gtc tcc acc ctc		7177	
Val Arg Val Cys Glu Lys Met Ala Leu Tyr Asp Val Val Ser Thr Leu			
1780	1785	1790	
cct cag gcc gtg atg ggc tct tca tac gga ttc caa tac tct cct gga		7225	
Pro Gln Ala Val Met Gly Ser Ser Tyr Gly Phe Gln Tyr Ser Pro Gly			
1795	1800	1805	
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Gln Arg Val Glu Phe Leu Val Asn Ala Trp Lys Ala Lys Lys Cys Pro			
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atg ggc ttc gca tat gac acc cgc tgt ttt gac tca acg gtc act gag		7321	
Met Gly Phe Ala Tyr Asp Thr Arg Cys Phe Asp Ser Thr Val Thr Glu			
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aat gac atc cgt gtt gag gag tca atc tac caa tgt tgt gac ttg gcc		7369	
Asn Asp Ile Arg Val Glu Glu Ser Ile Tyr Gln Cys Cys Asp Leu Ala			
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ccc gaa gcc aga cag gcc ata agg tcg ctc aca gag cgg ctt tac atc		7417	
Pro Glu Ala Arg Gln Ala Ile Arg Ser Leu Thr Glu Arg Leu Tyr Ile			
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ggg ggc ccc ctg act aat tct aaa ggg cag aac tgc ggc tat cgc cgg		7465	
Gly Gly Pro Leu Thr Asn Ser Lys Gly Gln Asn Cys Gly Tyr Arg Arg			
1875	1880	1885	
tgc cgc gcg agc ggt gta ctg acg acc agc tgc ggt aat acc ctc aca		7513	
Cys Arg Ala Ser Gly Val Leu Thr Thr Ser Cys Gly Asn Thr Leu Thr			
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tgt tac ttg aag gcc gct gcg gcc tgt cga gct gcg aag ctc cag gac		7561	
Cys Tyr Leu Lys Ala Ala Ala Cys Arg Ala Ala Lys Leu Gln Asp			
1905	1910	1915	1920

tgc acg atg ctc gta tgc gga gac gac ctt gtc gtt atc tgt gaa agc Cys Thr Met Leu Val Cys Gly Asp Asp Leu Val Val Ile Cys Glu Ser 1925 1930 1935	7609
gcg ggg acc caa gag gac gag gcg agc cta cgg gcc ttc acg gag gct Ala Gly Thr Gln Glu Asp Glu Ala Ser Leu Arg Ala Phe Thr Glu Ala 1940 1945 1950	7657
atg act aga tac tct gcc ccc cct ggg gac ccc aaa cca gaa tac Met Thr Arg Tyr Ser Ala Pro Pro Gly Asp Pro Pro Lys Pro Glu Tyr 1955 1960 1965	7705
gac ttg gag ttg ata aca tca tgc tcc tcc aat gtg tca gtc gcg cac Asp Leu Glu Leu Ile Thr Ser Cys Ser Ser Asn Val Ser Val Ala His 1970 1975 1980	7753
gat gca tct ggc aaa agg gtg tac tat ctc acc cgt gac ccc acc acc Asp Ala Ser Gly Lys Arg Val Tyr Tyr Leu Thr Arg Asp Pro Thr Thr 1985 1990 1995 2000	7801
ccc ctt gcg cgg gct gcg tgg gag aca gct aga cac act cca gtc aat Pro Leu Ala Arg Ala Ala Trp Glu Thr Ala Arg His Thr Pro Val Asn 2005 2010 2015	7849
tcc tgg cta ggc aac atc atc atg tat gcg ccc acc ttg tgg gca agg Ser Trp Leu Gly Asn Ile Ile Met Tyr Ala Pro Thr Leu Trp Ala Arg 2020 2025 2030	7897
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ctt gaa aaa gcc cta gat tgt cag atc tac ggg gcc tgt tac tcc att Leu Glu Lys Ala Leu Asp Cys Gln Ile Tyr Gly Ala Cys Tyr Ser Ile 2050 2055 2060	7993
gag cca ctt gac cta cct cag atc att caa cga ctc cac ggc ctt agc Glu Pro Leu Asp Leu Pro Gln Ile Ile Gln Arg Leu His Gly Leu Ser 2065 2070 2075 2080	8041
gca ttt tca ctc cat agt tac tct cca ggt gag atc aat agg gtg gct Ala Phe Ser Leu His Ser Tyr Ser Pro Gly Glu Ile Asn Arg Val Ala 2085 2090 2095	8089
tca tgc ctc agg aaa ctt ggg gta ccg ccc ttg cga gtc tgg aga cat Ser Cys Leu Arg Lys Leu Gly Val Pro Pro Leu Arg Val Trp Arg His 2100 2105 2110	8137
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gcc act tgt ggc aag tac ctc ttc aac tgg gca gta agg acc aag ctc Ala Thr Cys Gly Lys Tyr Leu Phe Asn Trp Ala Val Arg Thr Lys Leu 2130 2135 2140	8233

aaa ctc act cca atc ccg gct gcg tcc cag ttg gat tta tcc agc tgg	8281
Lys Leu Thr Pro Ile Pro Ala Ala Ser Gln Leu Asp Leu Ser Ser Trp	
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ttc gtt gct ggt tac agc ggg gga gac ata tat cac agc ctg tct cgt	8329
Phe Val Ala Gly Tyr Ser Gly Gly Asp Ile Tyr His Ser Leu Ser Arg	
2165 2170 2175	
gcc cga ccc cgc tgg ttc atg tgg tgc cta ctc cta ctt tct gta ggg	8377
Ala Arg Pro Arg Trp Phe Met Trp Cys Leu Leu Leu Ser Val Gly	
2180 2185 2190	
gta ggc atc tat cta ctc ccc aac cga tga acggggagct aaacactcca	8427
Val Gly Ile Tyr Leu Leu Pro Asn Arg *	
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c atg gac	cg gag atg	gca gca	tcg tgc	gga ggc	gct ttc	gta ggt	1849
Met Asp Arg	Glu Met	Ala Ala	Ser Cys	Gly Gly	Ala Val	Phe Val	Gly
1	5	10	15				
ctg ata ctc ttg acc ttg tca	ccg cac tat aag	ctg ttc ctc	gct agg				1897
Leu Ile Leu Leu Thr Leu Ser	Pro His Tyr Lys	Leu Phe Leu Ala	Arg				
20	25	30					
ctc ata tgg tgg tta caa tat	ttt atc acc agg	gcc gag	gca cac	ttg			1945
Leu Ile Trp Trp Leu Gln Tyr	Phe Ile Thr Arg	Ala Glu Ala	His Leu				
35	40	45					
caa gtg tgg atc ccc ccc	ctc aac gtt	cg ggg ggc	cgc gat	gcc gtc			1993
Gln Val Trp Ile Pro Pro	Leu Asn Val Arg	Gly Gly	Arg Asp	Ala Val			
50	55	60					
atc ctc ctc acg tgc	gct atc cac cca	gag cta	atc ttt acc	atc acc			2041
Ile Leu Leu Thr Cys Ala	Ile His Pro Glu	Leu Ile Phe	Thr Ile Thr				
65	70	75	80				
aaa atc ttg ctc gcc	ata ctc ggt	cca ctc atg	gtg ctc cag	gct ggt			2089
Lys Ile Leu Ala Ile Leu	Gly Pro Leu Met	Val Leu Gln	Ala Gly				
85	90	95					
ata acc aaa gtg ccg	tac ttc gtg	cgc gca	cac ggg	ctc att	cgt gca		2137
Ile Thr Lys Val Pro	Tyr Phe Val Arg	Ala His	Gly Leu	Ile Arg	Ala		
100	105	110					
tgc atg ctg gtg	cg aag gtt	gct ggg	ggt cat	tat gtc	caa atg	gct	2185
Cys Met Leu Val Arg	Lys Val Ala	Gly Gly	His Tyr	Val Gln	Met Ala		
115	120	125					
ctc atg aag ttg gcc	gca ctg aca	ggt acg tac	gtt tat	gac cat	ctc		2233
Leu Met Lys Leu Ala	Ala Leu Thr	Gly Thr	Tyr Val	Tyr Asp	His Leu		
130	135	140					
acc cca ctg cgg	gac tgg gcc	cac gcg	ggc cta	cga gac	ctt gcg	gtg	2281
Thr Pro Leu Arg Asp	Trp Ala His	Ala Gly	Leu Arg	Asp Leu	Ala Val		
145	150	155	160				
gca gtt gag ccc	gtc ttc tct	gat atg	gag acc	aag gtt	atc acc		2329
Ala Val Glu Pro Val	Val Phe Ser	Asp Met	Glu Thr	Lys Val	Ile Thr		
165	170	175					
tgg ggg gca gac	acc gcg	tgt ggg	gac atc	atc ttg	ggc ctg	ccc	2377
Trp Gly Ala Asp	Thr Ala Ala	Cys Gly	Asp Ile	Ile Leu	Gly Leu	Pro	
180	185	190					

gtc tcc gcc cgc agg ggg agg gag ata cat ctg gga ccg gca gac agc Val Ser Ala Arg Arg Gly Arg Glu Ile His Leu Gly Pro Ala Asp Ser 195 200 205	2425
ctt gaa ggg cag ggg tgg cga ctc ctc gcg cct att acg gcc tac tcc Leu Glu Gly Gln Gly Trp Arg Leu Leu Ala Pro Ile Thr Ala Tyr Ser 210 215 220	2473
caa cag acg cga ggc cta ctt ggc tgc atc atc act agc ctc aca ggc Gln Gln Thr Arg Gly Leu Leu Gly Cys Ile Ile Thr Ser Leu Thr Gly 225 230 235 240	2521
cg <sup>g</sup> gac agg aac cag gtc gag ggg gag gtc c <sup>a</sup> gtg gtc tcc acc gca Arg Asp Arg Asn Gln Val Glu Gly Glu Val Gln Val Val Ser Thr Ala 245 250 255	2569
aca c <sup>a</sup> tct ttc ctg gc <sup>g</sup> acc tgc gtc aat ggc gtg tgt tgg act gtc Thr Gln Ser Phe Leu Ala Thr Cys Val Asn Gly Val Cys Trp Thr Val 260 265 270	2617
tat cat ggt gcc ggc tca aag acc ctt gcc ggc cca aag ggc cca atc Tyr His Gly Ala Gly Ser Lys Thr Leu Ala Gly Pro Lys Gly Pro Ile 275 280 285	2665
acc c <sup>a</sup> atg tac acc aat gtg gac cag gac ctc gtc ggc tgg c <sup>a</sup> g <sup>c</sup> g Thr Gln Met Tyr Thr Asn Val Asp Gln Asp Leu Val Gly Trp Gln Ala 290 295 300	2713
ccc ccc ggg g <sup>c</sup> g <sup>c</sup> cgt tcc ttg aca cca tgc acc tgc ggc agc tcg gac Pro Pro Gly Ala Arg Ser Leu Thr Pro Cys Thr Cys Gly Ser Ser Asp 305 310 315 320	2761
ctt tac ttg gtc acg agg cat gcc gat gtc att ccg gtg cgc cgg cgg Leu Tyr Leu Val Thr Arg His Ala Asp Val Ile Pro Val Arg Arg Arg 325 330 335	2809
ggc gac agc agg ggg agc cta ctc tcc ccc agg ccc gtc tcc tac ttg Gly Asp Ser Arg Gly Ser Leu Leu Ser Pro Arg Pro Val Ser Tyr Leu 340 345 350	2857
aag ggc tct tcg ggc ggt cca ctg ctc tgc ccc tcg ggg cac gac gct gtg Lys Gly Ser Ser Gly Gly Pro Leu Leu Cys Pro Ser Gly His Ala Val 355 360 365	2905
ggc atc ttt cgg gct gcc gtg tgc acc cgg ggg gtt g <sup>c</sup> aag g <sup>c</sup> g <sup>c</sup> gtg Gly Ile Phe Arg Ala Ala Val Cys Thr Arg Gly Val Ala Lys Ala Val 370 375 380	2953
gac ttt gta ccc gtc gag tct atg gga acc act atg cgg tcc ccg gtc Asp Phe Val Pro Val Glu Ser Met Gly Thr Thr Met Arg Ser Pro Val 385 390 395 400	3001
ttc acg gac aac tcg tcc cct ccg gcc gta ccg cag aca ttc cag gtg Phe Thr Asp Asn Ser Ser Pro Pro Ala Val Pro Gln Thr Phe Gln Val 405 410 415	3049

gcc cat cta cac gcc cct act ggt agc ggc aag agc act aag gtg ccg	3097
Ala His Leu His Ala Pro Thr Gly Ser Gly Lys Ser Thr Lys Val Pro	
420 425 430	
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Ala Ala Tyr Ala Ala Gln Gly Tyr Lys Val Leu Val Leu Asn Pro Ser	
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gtc gcc gcc acc cta ggt ttc ggg gcg tat atg tct aag gca cat ggt	3193
Val Ala Ala Thr Leu Gly Phe Gly Ala Tyr Met Ser Lys Ala His Gly	
450 455 460	
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Ile Asp Pro Asn Ile Arg Thr Gly Val Arg Thr Ile Thr Thr Gly Ala	
465 470 475 480	
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Pro Ile Thr Tyr Ser Thr Tyr Gly Lys Phe Leu Ala Asp Gly Gly Cys	
485 490 495	
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Ser Gly Gly Ala Tyr Asp Ile Ile Cys Asp Glu Cys His Ser Thr	
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Asp Ser Thr Thr Ile Leu Gly Ile Gly Thr Val Leu Asp Gln Ala Glu	
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Thr Ala Gly Ala Arg Leu Val Val Leu Ala Thr Ala Thr Pro Pro Gly	
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Ser Val Thr Val Pro His Pro Asn Ile Glu Glu Val Ala Leu Ser Ser	
545 550 555 560	
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Thr Gly Glu Ile Pro Phe Tyr Gly Lys Ala Ile Pro Ile Glu Thr Ile	
565 570 575	
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Lys Gly Gly Arg His Leu Ile Phe Cys His Ser Lys Lys Lys Cys Asp	
580 585 590	
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Glu Leu Ala Ala Lys Leu Ser Gly Leu Gly Leu Asn Ala Val Ala Tyr	
595 600 605	
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Tyr Arg Gly Leu Asp Val Ser Val Ile Pro Thr Ser Gly Asp Val Ile	
610 615 620	
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Val Val Ala Thr Asp Ala Leu Met Thr Gly Phe Thr Gly Asp Phe Asp	

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Ser	Val	Ile	Asp	Cys	Asn	Thr	Cys	Val	Thr	Gln	Thr	Val	Asp	Phe	Ser			
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Leu	Asp	Pro	Thr	Phe	Thr	Ile	Glu	Thr	Thr	Thr	Val	Pro	Gln	Asp	Ala			
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Val	Ser	Arg	Ser	Gln	Arg	Arg	Gly	Arg	Thr	Gly	Arg	Gly	Arg	Met	Gly			
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Ile	Tyr	Arg	Phe	Val	Thr	Pro	Gly	Glu	Arg	Pro	Ser	Gly	Met	Phe	Asp			
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Ser	Ser	Val	Leu	Cys	Glu	Cys	Tyr	Asp	Ala	Gly	Cys	Ala	Trp	Tyr	Glu			
705						710								715		720		
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Leu	Thr	Pro	Ala	Glu	Thr	Ser	Val	Arg	Leu	Arg	Ala	Tyr	Leu	Asn	Thr			
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Pro	Gly	Leu	Pro	Val	Cys	Gln	Asp	His	Leu	Glu	Phe	Trp	Glu	Ser	Val			
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Cys	Ala	Arg	Ala	Gln	Ala	Pro	Pro	Pro	Ser	Trp	Asp	Gln	Met	Trp	Lys			
785						790								795		800		
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Cys	Leu	Ile	Arg	Leu	Lys	Pro	Thr	Leu	His	Gly	Pro	Thr	Pro	Leu	Leu			
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Tyr	Arg	Leu	Gly	Ala	Val	Gln	Asn	Glu	Val	Thr	Thr	Thr	His	Pro	Ile			
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Thr	Lys	Tyr	Ile	Met	Ala	Cys	Met	Ser	Ala	Asp	Leu	Glu	Val	Val	Thr			
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agc	acc	tgg	gtg	ctg	gta	ggc	gga	gtc	cta	gca	gct	ctg	gcc	g	tat		4393	

Ser	Thr	Trp	Val	Leu	Val	Gly	Gly	Val	Leu	Ala	Ala	Leu	Ala	Ala	Tyr		
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tgc ctg aca aca ggc agc gtg gtc att gtg ggc agg atc atc ttg tcc															4441		
Cys	Leu	Thr	Thr	Gly	Ser	Val	Val	Ile	Val	Gly	Arg	Ile	Ile	Leu	Ser		
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Gly	Lys	Pro	Ala	Ile	Ile	Pro	Asp	Arg	Glu	Val	Leu	Tyr	Arg	Glu	Phe		
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aca gcc acc aag caa gcg gag gct gct ccc gtg gtg gaa tcc aag															4633		
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gcg ata gca tca ctg atg gca ttc aca gcc tct atc acc agc ccg ctc															4777		
Ala	Ile	Ala	Ser	Leu	Met	Ala	Phe	Thr	Ala	Ser	Ile	Thr	Ser	Pro	Leu		
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acc acc caa cat acc ctc ctg ttt aac atc ctg ggg gga tgg gtg gcc															4825		
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Phe	Lys	Val	Met	Ser	Gly	Glu	Met	Pro	Ser	Thr	Glu	Asp	Leu	Val	Asn		
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Cys Ala Ala Ile Leu Arg Arg His Val Gly Pro Gly Glu Gly Ala Val	
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Gln Trp Met Asn Arg Leu Ile Ala Phe Ala Ser Arg Gly Asn His Val	
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Ser Pro Thr His Tyr Val Pro Glu Ser Asp Ala Ala Ala Arg Val Thr	
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Gln Ile Leu Ser Ser Leu Thr Ile Thr Gln Leu Leu Lys Arg Leu His	
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Tyr Val Glu Val Thr Arg Val Gly Asp Phe His Tyr Val Thr Gly Met	
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Cys Pro Leu Pro Pro Ala Lys Ala Pro Pro Ile Pro Pro Pro Arg Arg	

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Cys Arg Ala Ser Gly Val Leu Thr Thr Ser Cys Gly Asn Thr Leu Thr				
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Cys Tyr Leu Lys Ala Ala Ala Cys Arg Ala Ala Lys Leu Gln Asp				
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Thr Gln Met Tyr Thr Asn Val Asp Gln Asp Leu Val Gly Trp Gln Ala	
290 295 300	
ccc ccc ggg gcg cgt tcc ttg aca cca tgc acc tgc ggc agc tcg gac	2761
Pro Pro Gly Ala Arg Ser Leu Thr Pro Cys Thr Cys Gly Ser Ser Asp	
305 310 315 320	
ctt tac ttg gtc acg agg cat gcc gat gtc att ccg gtg cgc cgg cgg	2809
Leu Tyr Leu Val Thr Arg His Ala Asp Val Ile Pro Val Arg Arg Arg	
325 330 335	
ggc gac ggc agg ggg agc cta ctc tcc ccc agg ccc gtc tcc tac ttg	2857
Gly Asp Gly Arg Gly Ser Leu Leu Ser Pro Arg Pro Val Ser Tyr Leu	
340 345 350	
aag ggc tct tcg ggc ggt cca ctg ctc tgc ccc tcg ggg cac gct gtg	2905
Lys Gly Ser Ser Gly Gly Pro Leu Leu Cys Pro Ser Gly His Ala Val	
355 360 365	
ggc atc ttt cgg gct gcc gtg tgc acc cga ggg gtt gcg aag gcg gtg	2953
Gly Ile Phe Arg Ala Ala Val Cys Thr Arg Gly Val Ala Lys Ala Val	
370 375 380	
gac ttt gta ccc gtc gag tct atg gga acc act atg ccg tcc ccg gtc	3001
Asp Phe Val Pro Val Glu Ser Met Gly Thr Thr Met Arg Ser Pro Val	
385 390 395 400	
tcc acg gac aac tcg tcc cct ccg gcc gta ccg cag aca ttc cag gtg	3049
Phe Thr Asp Asn Ser Ser Pro Pro Ala Val Pro Gln Thr Phe Gln Val	
405 410 415	
gcc cat cta cac gcc cct act ggt agc ggc aag agc act aag gtg ccg	3097
Ala His Leu His Ala Pro Thr Gly Ser Gly Lys Ser Thr Lys Val Pro	
420 425 430	
gct gcg tat gca gcc caa ggg tat aag gtg ctt gtc ctg aac ccg tcc	3145
Ala Ala Tyr Ala Ala Gln Gly Tyr Lys Val Leu Val Leu Asn Pro Ser	
435 440 445	

gtc gcc gcc acc cta ggt ttc ggg gcg tat atg tct aag gca cat ggt		3193	
Val Ala Ala Thr Leu Gly Phe Gly Ala Tyr Met Ser Lys Ala His Gly			
450	455	460	
atc gac cct aac atc aga acc ggg gta agg acc atc acc acg ggt gcc		3241	
Ile Asp Pro Asn Ile Arg Thr Gly Val Arg Thr Ile Thr Thr Gly Ala			
465	470	475	480
ccc atc acg tac tcc acc tat ggc aag ttt ctt gcc gac ggt ggt tgc		3289	
Pro Ile Thr Tyr Ser Thr Tyr Gly Lys Phe Leu Ala Asp Gly Gly Cys			
485	490	495	
tct ggg ggc gcc tat gac atc ata ata tgt gat gag tgc cac tca act		3337	
Ser Gly Gly Ala Tyr Asp Ile Ile Cys Asp Glu Cys His Ser Thr			
500	505	510	
gac tcg acc act atc ctg ggc atc ggc aca gtc ctg gac caa gcg gag		3385	
Asp Ser Thr Thr Ile Leu Gly Ile Gly Thr Val Leu Asp Gln Ala Glu			
515	520	525	
acg gct gga gcg cga ctc gtc gtg ctc gcc acc gct acg cct ccg gga		3433	
Thr Ala Gly Ala Arg Leu Val Val Leu Ala Thr Ala Thr Pro Pro Gly			
530	535	540	
tcg gtc acc gtg cca cat cca aac atc gag gag gtg gct ctg tcc agc		3481	
Ser Val Thr Val Pro His Pro Asn Ile Glu Glu Val Ala Leu Ser Ser			
545	550	555	560
act gga gaa atc ccc ttt tat ggc aaa gcc atc ccc atc gag acc atc		3529	
Thr Gly Glu Ile Pro Phe Tyr Gly Lys Ala Ile Pro Ile Glu Thr Ile			
565	570	575	
aag ggg ggg agg cac ctc att ttc tgc cat tcc aag aag aaa tgt gat		3577	
Lys Gly Arg His Leu Ile Phe Cys His Ser Lys Lys Lys Cys Asp			
580	585	590	
gag ctc gcc gcg aag ctg tcc ggc ctc gga ctc aat gct gta gca tat		3625	
Glu Leu Ala Ala Lys Leu Ser Gly Leu Gly Leu Asn Ala Val Ala Tyr			
595	600	605	
tac cgg ggc ctt gat gta tcc gtc ata cca act acg gga gac gtc att		3673	
Tyr Arg Gly Leu Asp Val Ser Val Ile Pro Thr Ser Gly Asp Val Ile			
610	615	620	
gtc gta gca acg gac gct cta atg acg ggc ttt acc ggc gat ttc gac		3721	
Val Val Ala Thr Asp Ala Leu Met Thr Gly Phe Thr Gly Asp Phe Asp			
625	630	635	640
tca gtg atc gac tgc aat aca tgt gtc acc cag aca gtc gac ttc acg		3769	
Ser Val Ile Asp Cys Asn Thr Cys Val Thr Gln Thr Val Asp Phe Ser			
645	650	655	
ctg gac ccg acc ttc acc att gag acg acg acc gtg cca caa gac gcg		3817	
Leu Asp Pro Thr Phe Thr Ile Glu Thr Thr Val Pro Gln Asp Ala			

660	665	670	
gtg tca cgc tcg cag cgg cga ggc agg act ggt agg ggc agg atg ggc			3865
Val Ser Arg Ser Gln Arg Arg Gly Arg Thr Gly Arg Gly Arg Met Gly			
675	680	685	
att tac agg ttt gtg act cca gga gaa cgg ccc tcg ggc atg ttc gat			3913
Ile Tyr Arg Phe Val Thr Pro Gly Glu Arg Pro Ser Gly Met Phe Asp			
690	695	700	
tcc tcg gtt ctg tgc gag tgc tat gac gcg ggc tgt gct tgg tac gag			3961
Ser Ser Val Leu Cys Glu Cys Tyr Asp Ala Gly Cys Ala Trp Tyr Glu			
705	710	715	720
ctc acg ccc gcc gag acc tca gtt agg ttg cgg gct tac cta aac aca			4009
Leu Thr Pro Ala Glu Thr Ser Val Arg Leu Arg Ala Tyr Leu Asn Thr			
725	730	735	
cca ggg ttg ccc gtc tgc cag gac cat ctg gag ttc tgg gag agc gtc			4057
Pro Gly Leu Pro Val Cys Gln Asp His Leu Glu Phe Trp Glu Ser Val			
740	745	750	
ttt aca ggc ctc acc cac ata gac gcc cat ttc ttg tcc cag act aag			4105
Phe Thr Gly Leu Thr His Ile Asp Ala His Phe Leu Ser Gln Thr Lys			
755	760	765	
cag gca gga gac aac ttc ccc tac ctg gta gca tac cag gct acg gtc			4153
Gln Ala Gly Asp Asn Phe Pro Tyr Leu Val Ala Tyr Gln Ala Thr Val			
770	775	780	
tgc gcc agg gct cag gct cca cct cca tcg tgg gac caa atg tgg aag			4201
Cys Ala Arg Ala Gln Ala Pro Pro Ser Trp Asp Gln Met Trp Lys			
785	790	795	800
tgt ctc ata cgg cta aag cct acg ctg cac ggg cca acg ccc ctg ctg			4249
Cys Leu Ile Arg Leu Lys Pro Thr Leu His Gly Pro Thr Pro Leu Leu			
805	810	815	
tat agg ctg gga gcc gtt caa aac gag gtt act acc aca cac ccc ata			4297
Tyr Arg Leu Gly Ala Val Gln Asn Glu Val Thr Thr His Pro Ile			
820	825	830	
acc aaa tac atc atg gca tgc atg tcg gct gac ctg gag gtc gtc acg			4345
Thr Lys Tyr Ile Met Ala Cys Met Ser Ala Asp Leu Glu Val Val Thr			
835	840	845	
agc acc tgg gtg ctg gta ggc gga gtc cta gca gct ctg gcc gcg tat			4393
Ser Thr Trp Val Leu Val Gly Gly Val Leu Ala Ala Leu Ala Ala Tyr			
850	855	860	-
tgc ctg aca aca ggc agc gtg gtc att gtg ggc agg atc atc ttg tcc			4441
Cys Leu Thr Thr Gly Ser Val Val Ile Val Gly Arg Ile Ile Leu Ser			
865	870	875	880
gga aag ccg gcc atc att ccc gac agg gaa gtc ttt tac cgg gag ttc			4489

Gly Lys Pro Ala Ile Ile Pro Asp Arg Glu Val Phe Tyr Arg Glu Phe			
885	890	895	
gat gag atg gaa gag tgc gcc tca cac ctc cct tac atc gaa cag gga			4537
Asp Glu Met Glu Glu Cys Ala Ser His Leu Pro Tyr Ile Glu Gln Gly			
900	905	910	
atg cag ctc gcc gaa caa ttc aaa cag aag gca atc ggg ttg ctg caa			4585
Met Gln Leu Ala Glu Gln Phe Lys Gln Lys Ala Ile Gly Leu Leu Gln			
915	920	925	
aca gcc acc aag caa gcg gag gct gct ccc gtg gtg gaa tcc aag			4633
Thr Ala Thr Lys Gin Ala Glu Ala Ala Pro Val Val Glu Ser Lys			
930	935	940	
tgg cgg acc ctc gaa gcc ttc tgg gcg aag cat atg tgg aat ttc atc			4681
Trp Arg Thr Leu Glu Ala Phe Trp Ala Lys His Met Trp Asn Phe Ile			
945	950	955	960
agc ggg ata caa tat tta gca ggc ttg tcc act ctg cct ggc aac ccc			4729
Ser Gly Ile Gln Tyr Leu Ala Gly Leu Ser Thr Leu Pro Gly Asn Pro			
965	970	975	
gcg ata gca tca ctg atg gca ttc aca gcc tct atc acc agc ccg ctc			4777
Ala Ile Ala Ser Leu Met Ala Phe Thr Ala Ser Ile Thr Ser Pro Leu			
980	985	990	
acc acc caa cat acc ctc ctg ttt aac atc ctg ggg gga tgg gtg gcc			4825
Thr Thr Gln His Thr Leu Leu Phe Asn Ile Leu Gly Gly Trp Val Ala			
995	1000	1005	
gcc caa ctt gct ccc agc gct gct tct gta ggc gcc ggc			4873
Ala Gln Leu Ala Pro Pro Ser Ala Ala Ser Ala Phe Val Gly Ala Gly			
1010	1015	1020	
atc gct gga gcg gct gtt ggc agc ata ggc ctt ggg aag gtg ctt gtg			4921
Ile Ala Gly Ala Ala Val Gly Ser Ile Gly Leu Gly Lys Val Leu Val			
1025	1030	1035	1040
gat att ttg gca ggt tat gga gca ggg gtg gca ggc gcg ctc gtg gcc			4969
Asp Ile Leu Ala Gly Tyr Gly Ala Gly Val Ala Gly Ala Leu Val Ala			
1045	1050	1055	
ttt aag gtc atg agc ggc gag atg ccc tcc acc gag gac ctg gtt aac			5017
Phe Lys Val Met Ser Gly Glu Met Pro Ser Thr Glu Asp Leu Val Asn			
1060	1065	1070	
cta ctc cct gct atc ctc tcc cct ggc gcc cta gtc gtc ggg gtc gtg			5065
Leu Leu Pro Ala Ile Leu Ser Pro Gly Ala Leu Val Val Gly Val Val			
1075	1080	1085	
tgc gca gcg ata ctg cgt cgg cac gtg ggc cca ggg gag ggg gct gtg			5113
Cys Ala Ala Ile Leu Arg Arg His Val Gly Pro Gly Glu Gly Ala Val			
1090	1095	1100	

cag tgg atg aac cgg ctg ata gcg ttc gct tcg cgg ggt aac cac gtc Gln Trp Met Asn Arg Leu Ile Ala Phe Ala Ser Arg Gly Asn His Val 1105 1110 1115 1120	5161
tcc ccc acg cac tat gtg cct gag agc gac gct gca gca cgt gtc act Ser Pro Thr His Tyr Val Pro Glu Ser Asp Ala Ala Arg Val Thr 1125 1130 1135	5209
cag atc ctc tct agt ctt acc atc act cag ctg ctg aag agg ctt cac Gln Ile Leu Ser Ser Leu Thr Ile Thr Gln Leu Leu Lys Arg Leu His 1140 1145 1150	5257
cag tgg atc aac gag gac tgc tcc acg cca tgc tcc ggc tcg tgg cta Gln Trp Ile Asn Glu Asp Cys Ser Thr Pro Cys Ser Gly Ser Trp Leu 1155 1160 1165	5305
aga gat gtt tgg gat tgg ata tgc acg gtg ttg act gat ttc aag acc Arg Asp Val Trp Asp Trp Ile Cys Thr Val Leu Thr Asp Phe Lys Thr 1170 1175 1180	5353
tgg ctc cag tcc aag qtc ctg ccg cga ttg ccg gga gtc ccc ttc ttc Trp Leu Gln Ser Lys Leu Leu Pro Arg Leu Pro Gly Val Pro Phe Phe 1185 1190 1195 1200	5401
tca tgt caa cgt ggg tac aag gga gtc tgg ccg ggc gac ggc atc atg Ser Cys Gln Arg Gly Tyr Lys Gly Val Trp Arg Gly Asp Gly Ile Met 1205 1210 1215	5449
caa acc acc tgc cca tgt gga gca cag atc acc gga cat gtg aaa aac Gln Thr Thr Cys Pro Cys Gly Ala Gln Ile Thr Gly His Val Lys Asn 1220 1225 1230	5497
cgt tcc atg agg atc gtg ggg cct agg acc tgt aac acg tgg cat Arg Ser Met Arg Ile Val Gly Pro Arg Thr Cys Ser Asn Thr Trp His 1235 1240 1245	5545
gga aca ttc ccc att aac gcg tac acc acg ggc ccc tgc acg ccc tcc Gly Thr Phe Pro Ile Asn Ala Tyr Thr Thr Gly Pro Cys Thr Pro Ser 1250 1255 1260	5593
ccg gcg cca aat tat tct agg gcg ctg tgg ccg gtg gct gct gag gag Pro Ala Pro Asn Tyr Ser Arg Ala Leu Trp Arg Val Ala Ala Glu Glu 1265 1270 1275 1280	5641
tac gtg gag gtt acg cgg gtg ggg gat ttc cac tac gtg acg ggc atg Tyr Val Glu Val Thr Arg Val Gly Asp Phe His Tyr Val Thr Gly Met 1285 1290 1295	5689
acc act gac aac gta aag tgc ccg tgt cag gtt ccg gcc ccc gaa ttc Thr Thr Asp Asn Val Lys Cys Pro Cys Gln Val Pro Ala Pro Glu Phe 1300 1305 1310	5737
ttc aca gaa gtg gat ggg gtg cgg ttg cac agg tac gct cca gcg tgc Phe Thr Glu Val Asp Gly Val Arg Leu His Arg Tyr Ala Pro Ala Cys 1315 1320 1325	5785

aaa ccc ctc cta cg <sup>g</sup> gag gtc aca ttc ctg gtc ggg ctc aat caa Lys Pro Leu Leu Arg Glu Glu Val Thr Phe Leu Val Gly Leu Asn Gln 1330 1335 1340	5833
tac ctg gtt ggg tca cag ctc cca tgc gag ccc gaa ccg gac gta gca Tyr Leu Val Gly Ser Gln Leu Pro Cys Glu Pro Glu Pro Asp Val Ala 1345 1350 1355 1360	5881
gtg ctc act tcc atg ctc acc gac ccc tcc cac att acg gcg gag acg Val Leu Thr Ser Met Leu Thr Asp Pro Ser His Ile Thr Ala Glu Thr 1365 1370 1375	5929
gct aag cgt agg ctg gcc agg gga tct ccc ccc tcc ttg gcc agc tca Ala Lys Arg Arg Leu Ala Arg Gly Ser Pro Pro Ser Leu Ala Ser Ser 1380 1385 1390	5977
tca gct agc cag ctg tct gcg cct tcc ttg aag gca aca tgc act acc Ser Ala Ser Gln Leu Ser Ala Pro Ser Leu Lys Ala Thr Cys Thr Thr 1395 1400 1405	6025
cgt cat gac tcc ccg gac gct gac ctc atc gag gcc aac ctc ctg tgg Arg His Asp Ser Pro Asp Ala Asp Leu Ile Glu Ala Asn Leu Leu Trp 1410 1415 1420	6073
cg <sup>g</sup> cag gag atg ggc ggg aac atc acc cgc gtg gag tca gaa aat aag Arg Gln Glu Met Gly Gly Asn Ile Thr Arg Val Glu Ser Glu Asn Lys 1425 1430 1435 1440	6121
gta gta att ttg gac tct ttc gag ccg ctc caa gcg gag gag gat gag Val Val Ile Leu Asp Ser Phe Glu Pro Leu Gln Ala Glu Glu Asp Glu 1445 1450 1455	6169
agg gaa gta tcc gtt ccg gcg gag atc ctg ccg agg tcc agg aaa ttc Arg Glu Val Ser Val Pro Ala Glu Ile Leu Arg Arg Ser Arg Lys Phe 1460 1465 1470	6217
cct cga gcg atg ccc ata tgg gca cgc ccg gat tac aac cct cca ctg Pro Arg Ala Met Pro Ile Trp Ala Arg Pro Asp Tyr Asn Pro Pro Leu 1475 1480 1485	6265
tta gag tcc tgg aag gac ccg gac tac gtc cct cca gtg gta cac ggg Leu Glu Ser Trp Lys Asp Pro Asp Tyr Val Pro Pro Val Val His Gly 1490 1495 1500	6313
tgt cca ctg ccg cct gcc aag gcc cct ccg ata cca cct cca ccg agg Cys Pro Leu Pro Pro Ala Lys Ala Pro Pro Ile Pro Pro Pro Arg Arg 1505 1510 1515 1520	6361
aag agg acg gtt gtc ctg tca gaa tct acc gtg tct tct gcc ttg gcg Lys Arg Thr Val Val Leu Ser Glu Ser Thr Val Ser Ser Ala Leu Ala 1525 1530 1535	6409
gag ctc gcc aca aag acc ttc ggc agc tcc gaa tcg tcg gcc gtc gac Glu Leu Ala Thr Lys Thr Phe Gly Ser Ser Glu Ser Ser Ala Val Asp	6457

1540	1545	1550	
agc ggc acg gca acg gcc tct cct gac cag ccc tcc gac gac ggc gac Ser Gly Thr Ala Thr Ala Ser Pro Asp Gln Pro Ser Asp Asp Gly Asp			6505
1555	1560	1565	
gcg gga tcc gac gtt gag tcg tac tcc tcc atg ccc ccc ctt gag ggg Ala Gly Ser Asp Val Glu Ser Tyr Ser Ser Met Pro Pro Leu Glu Gly			6553
1570	1575	1580	
gag ccg ggg gat ccc gat ctc agc gac ggg cct tgg tct acc gta agc Glu Pro Gly Asp Pro Asp Leu Ser Asp Gly Pro Trp Ser Thr Val Ser			6601
1585	1590	1595	1600
gag gag gct agt gag gac gtc gtc tgc tgc tcg atg tcc tac aca tgg Glu Glu Ala Ser Glu Asp Val Val Cys Cys Ser Met Ser Tyr Thr Trp			6649
1605	1610	1615	
aca ggc gcc ctg atc acg cca tgc gct gcg gag gaa acc aag ctg ccc Thr Gly Ala Leu Ile Thr Pro Cys Ala Ala Glu Glu Thr Lys Leu Pro			6697
1620	1625	1630	
atc aat gca ctg agc aac tct ttg ctc cgt cac cac aac ttg gtc tat Ile Asn Ala Leu Ser Asn Ser Leu Leu Arg His His Asn Leu Val Tyr			6745
1635	1640	1645	
gct aca aca tct cgc agc gca agc ctg cgg cag aag aag gtc acc ttt Ala Thr Thr Ser Arg Ser Ala Ser Leu Arg Gln Lys Lys Val Thr Phe			6793
1650	1655	1660	
gac aga ctg cag gtc ctg gac gac cac tac cgg gac gtg ctc aag gag Asp Arg Leu Gln Val Leu Asp Asp His Tyr Arg Asp Val Leu Lys Glu			6841
1665	1670	1675	1680
atg aag gcg aag gcg tcc aca gtt aag gct aaa ctt cta tcc gtg gag Met Lys Ala Lys Ala Ser Thr Val Lys Ala Lys Leu Leu Ser Val Glu			6889
1685	1690	1695	
gaa gcc tgt aag ctg acg ccc cca cat tcg gcc aga tct aaa ttt ggc Glu Ala Cys Lys Leu Thr Pro Pro His Ser Ala Arg Ser Lys Phe Gly			6937
1700	1705	1710	
tat ggg gca aag gac gtc cgg aac cta tcc agc aag gcc gtt aac cac Tyr Gly Ala Lys Asp Val Arg Asn Leu Ser Ser Lys Ala Val Asn His			6985
1715	1720	1725	
atc cgc tcc gtg tgg aag gac ttg ctg gaa gac act gag aca cca att Ile Arg Ser Val Trp Lys Asp Leu Leu Glu Asp Thr Glu Thr Pro Ile			7033
1730	1735	1740	
gac acc acc atc atg gca aaa aat gag gtt ttc tgc gtc caa cca gag Asp Thr Thr Ile Met Ala Lys Asn Glu Val Phe Cys Val Gln Pro Glu			7081
1745	1750	1755	1760
aag ggg ggc cgc aag cca gct cgc ctt atc gta ttc cca gat ttg ggg			7129

Lys	Gly	Gly	Arg	Lys	Pro	Ala	Arg	Leu	Ile	Val	Phe	Pro	Asp	Leu	Gly	
				1765				1770						1775		
gtt	cgt	gtg	tgc	gag	aaa	atg	gcc	ctt	tac	gat	gtg	gtc	tcc	acc	ctc	7177
Val	Arg	Val	Cys	Glu	Lys	Met	Ala	Leu	Tyr	Asp	Val	Val	Ser	Thr	Leu	
				1780				1785					1790			
cct	cag	gcc	gtg	atg	ggc	tct	tca	tac	gga	ttc	caa	taa	tct	cct	gga	7225
Pro	Gln	Ala	Val	Met	Gly	Ser	Ser	Tyr	Gly	Phe	Gln	Tyr	Ser	Pro	Gly	
				1795			1800				1805					
cag	cgg	gtc	gag	ttc	ctg	gtg	aat	gcc	tgg	aaa	gca	aag	aaa	tgc	cct	7273
Gln	Arg	Val	Glu	Phe	Leu	Val	Asn	Ala	Trp	Lys	Ala	Lys	Lys	Cys	Pro	
				1810		1815				1820						
atg	ggc	ttc	gca	tat	gac	acc	cgc	tgt	ttt	gac	tca	acg	gtc	act	gag	7321
Met	Gly	Phe	Ala	Tyr	Asp	Thr	Arg	Cys	Phe	Asp	Ser	Thr	Val	Thr	Glu	
				1825		1830			1835			1840				
aat	gac	atc	cgt	gtt	gag	gag	tca	atc	tac	caa	tgt	tgt	gac	ttg	gcc	7369
Asn	Asp	Ile	Arg	Val	Glu	Glu	Ser	Ile	Tyr	Gln	Cys	Cys	Asp	Leu	Ala	
				1845			1850			1855						
ccc	gaa	gcc	aga	cag	gcc	ata	agg	tcg	ctc	aca	gag	cg	ctt	ta	atc	7417
Pro	Glu	Ala	Arg	Gln	Ala	Ile	Arg	Ser	Leu	Thr	Glu	Arg	Leu	Tyr	Ile	
				1860		1865			1870							
ggg	ggc	ccc	ctg	act	aat	tct	aaa	ggg	cag	aac	tgc	ggc	tat	cgc	cg	7465
Gly	Gly	Pro	Leu	Thr	Asn	Ser	Lys	Gly	Gln	Asn	Cys	Gly	Tyr	Arg	Arg	
				1875		1880			1885							
tgc	cgc	gag	ggt	gta	ctg	acg	acc	agc	tgc	ggt	aat	acc	ctc	aca		7513
Cys	Arg	Ala	Ser	Gly	Val	Leu	Thr	Thr	Ser	Cys	Gly	Asn	Thr	Leu	Thr	
				1890		1895			1900							
tgt	ta	ttg	aag	gcc	gct	gct	gct	cg	g	gct	g	aa	ctc	cag	gac	7561
Cys	Tyr	Leu	Lys	Ala	Ala	Ala	Ala	Cys	Arg	Ala	Ala	Lys	Leu	Gln	Asp	
				1905		1910			1915			1920				
tgc	acg	atg	ctc	gta	tgc	gga	gac	gac	ctt	gtc	gtt	atc	tgt	gaa	agc	7609
Cys	Thr	Met	Leu	Val	Cys	Gly	Asp	Asp	Leu	Val	Val	Ile	Cys	Glu	Ser	
				1925		1930			1935							
g	cg	gg	acc	caa	gag	gag	g	cg	agc	cta	cg	gg	cc	ttc	ac	7657
Ala	Gly	Thr	Gln	Glu	Asp	Glu	Ala	Ser	Leu	Arg	Ala	Phe	Thr	Glu	Ala	
				1940		1945			1950							
atg	act	aga	ta	tct	gcc	ccc	cct	ggg	gac	ccg	ccc	aaa	cca	gaa	ta	7705
Met	Thr	Arg	Tyr	Ser	Ala	Pro	Pro	Gly	Asp	Pro	Pro	Lys	Pro	Glu	Tyr	
				1955		1960			1965							
gac	ttg	gag	ttg	ata	aca	tca	tgc	tcc	aat	gtg	tca	gtc	g	cac		7753
Asp	Leu	Glu	Leu	Ile	Thr	Ser	Cys	Ser	Ser	Asn	Val	Ser	Val	Ala	His	
				1970		1975			1980							

gat gca tct ggc aaa agg gtg tac tat ctc acc cgt gac ccc acc acc	7801
Asp Ala Ser Gly Lys Arg Val Tyr Tyr Leu Thr Arg Asp Pro Thr Thr	
1985 1990 1995 2000	
ccc ctt gcg cggt gct gcg tgg gag aca gct aga cac act cca gtc aat	7849
Pro Leu Ala Arg Ala Ala Trp Glu Thr Ala Arg His Thr Pro Val Asn	
2005 2010 2015	
tcc tgg cta ggc aac atc atc atg tat gcg ccc acc ttg tgg gca agg	7897
Ser Trp Leu Gly Asn Ile Ile Met Tyr Ala Pro Thr Leu Trp Ala Arg	
2020 2025 2030	
atg atc ctg atg act cat ttc ttc tcc atc ctt cta gct cag gaa caa	7945
Met Ile Leu Met Thr His Phe Phe Ser Ile Leu Leu Ala Gln Glu Gln	
2035 2040 2045	
ctt gaa aaa gcc cta gat tgt cag atc tac ggg gcc tgt tac tcc att	7993
Leu Glu Lys Ala Leu Asp Cys Gln Ile Tyr Gly Ala Cys Tyr Ser Ile	
2050 2055 2060	
gag cca ctt gac cta cct cag atc att caa cga ctc cac ggc ctt agc	8041
Glu Pro Leu Asp Leu Pro Gln Ile Ile Gln Arg Leu His Gly Leu Ser	
2065 2070 2075 2080	
gca ttt tca ctc cat agt tac tct cca ggt gag atc aat agg gtg gct	8089
Ala Phe Ser Leu His Ser Tyr Ser Pro Gly Glu Ile Asn Arg Val Ala	
2085 2090 2095	
tca tgc ctc agg aaa ctt ggg gta ccg ccc ttg cga gtc tgg aga cat	8137
Ser Cys Leu Arg Lys Leu Gly Val Pro Pro Leu Arg Val Trp Arg His	
2100 2105 2110	
cggt gcc aga agt gtc cgc gct agg cta ctg tcc cag ggg ggg agg gct	8185
Arg Ala Arg Ser Val Arg Ala Arg Leu Leu Ser Gln Gly Gly Arg Ala	
2115 2120 2125	
gcc act tgt ggc aag tac ctc ttc aac tgg gca gta agg acc aag ctc	8233
Ala Thr Cys Gly Lys Tyr Leu Phe Asn Trp Ala Val Arg Thr Lys Leu	
2130 2135 2140	
aaa ctc act cca atc ccg gct gcg tcc cag ttg gat tta tcc agc tgg	8281
Lys Leu Thr Pro Ile Pro Ala Ala Ser Gln Leu Asp Leu Ser Ser Trp	
2145 2150 2155 2160	
ttc gtt gct ggt tac agc ggg gga gac ata tat cac agc ctg tct cgt	8329
Phe Val Ala Gly Tyr Ser Gly Gly Asp Ile Tyr His Ser Leu Ser Arg	
2165 2170 2175	
gcc cga ccc cgc tgg ttc atg tgg tgc cta ctc cta ctt tct gta ggg	8377
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Val Gly Ile Tyr Leu Leu Pro Asn Arg *	
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1 5 10 15

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 Leu Ile Leu Leu Thr Leu Ser Pro His Tyr Lys Leu Phe Leu Ala Arg  
 20 25 30

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Leu Ile Trp Trp Leu Gln Tyr Phe Ile Thr Arg Ala Glu Ala His Leu			
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Gln Val Trp Ile Pro Pro Leu Asn Val Arg Gly Gly Arg Asp Ala Val			
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Ile Leu Leu Thr Cys Ala Ile His Pro Glu Leu Ile Phe Thr Ile Thr			
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Lys Ile Leu Leu Ala Ile Leu Gly Pro Leu Met Val Leu Gln Ala Gly			
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ata acc aaa gtg ccg tac ttc gtg cgc gca cac ggg ctc att cgt gca			2137
Ile Thr Lys Val Pro Tyr Phe Val Arg Ala His Gly Leu Ile Arg Ala			
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tgc atg ctg gtg cgg aag gtt gct ggg ggt cat tat gtc caa atg gct			2185
Cys Met Leu Val Arg Lys Val Ala Gly Gly His Tyr Val Gln Met Ala			
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ctc atg aag ttg gcc gca ctg aca ggt acg tac gtt tat gac cat ctc			2233
Leu Met Lys Leu Ala Ala Leu Thr Gly Thr Tyr Val Tyr Asp His Leu			
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acc cca ctg cgg gac tgg gcc cac gcg ggc cta cga gac ctt gcg gtg			2281
Thr Pro Leu Arg Asp Trp Ala His Ala Gly Leu Arg Asp Leu Ala Val			
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gca gtt gag ccc gtc ttc tct gat atg gag acc aag gtt atc acc			2329
Ala Val Glu Pro Val Val Phe Ser Asp Met Glu Thr Lys Val Ile Thr			
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tgg ggg gca gac acc gcg gcg tgt ggg gac atc atc ttg ggc ctg ccc			2377
Trp Gly Ala Asp Thr Ala Ala Cys Gly Asp Ile Ile Leu Gly Leu Pro			
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gtc tcc gcc cgc agg ggg agg gag ata cat ctg gga ccg gca gac agc			2425
Val Ser Ala Arg Arg Gly Arg Glu Ile His Leu Gly Pro Ala Asp Ser			
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ctt gaa ggg cag ggg tgg cga ctc ctc gcg cct att acg gcc tac tcc			2473
Leu Glu Gly Gln Gly Trp Arg Leu Leu Ala Pro Ile Thr Ala Tyr Ser			
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Gln Gln Thr Arg Gly Leu Leu Gly Cys Ile Ile Thr Ser Leu Thr Gly			
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cgg gac agg aac cag gtc gag ggg gag gtc caa gtg gtc tcc acc gca			2569
Arg Asp Arg Asn Gln Val Glu Gly Glu Val Gln Val Val Ser Thr Ala			
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Thr Gln Ser Phe Leu Ala Thr Cys Val Asn Gly Val Cys Trp Thr Val	
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Tyr His Gly Ala Gly Ser Lys Thr Leu Ala Gly Pro Lys Gly Pro Ile	
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Pro Pro Gly Ala Arg Ser Leu Thr Pro Cys Thr Cys Gly Ser Ser Asp	
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Leu Tyr Leu Val Thr Lys His Ala Asp Val Ile Pro Val Arg Arg Arg	
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Lys Gly Ser Ser Gly Gly Pro Leu Leu Cys Pro Ser Gly His Ala Val	
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Gly Ile Phe Arg Ala Ala Val Cys Thr Arg Gly Val Ala Lys Ala Val	
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Asp Phe Val Pro Val Glu Ser Met Glu Thr Thr Met Arg Ser Pro Val	
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Phe Thr Asp Asn Ser Ser Pro Pro Ala Val Pro Gln Thr Phe Gln Val	
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Ala His Leu His Ala Pro Thr Gly Ser Gly Lys Ser Thr Lys Val Pro	
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Val Ala Ala Thr Leu Gly Phe Gly Ala Tyr Met Ser Lys Ala His Gly	
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Ile Asp Pro Asn Ile Arg Thr Gly Val Arg Thr Ile Thr Thr Gly Ala	
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Pro Ile Thr Tyr Ser Thr Tyr Gly Lys Phe Leu Ala Asp Gly Gly Cys	
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Thr Ala Gly Ala Arg Leu Val Val Leu Ala Thr Ala Thr Pro Pro Gly	
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Lys Gly Gly Arg His Leu Ile Phe Cys His Ser Lys Lys Lys Cys Asp	
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Tyr Arg Gly Leu Asp Val Ser Val Ile Pro Thr Ser Gly Asp Val Ile	
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Val Val Ala Thr Asp Ala Leu Met Thr Gly Phe Thr Gly Asp Phe Asp	
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Leu Asp Pro Thr Phe Thr Ile Glu Thr Thr Val Pro Gln Asp Ala	
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Val Ser Arg Ser Gln Arg Arg Gly Arg Thr Gly Arg Gly Arg Met Gly	
675 680 685	
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Ile Tyr Arg Phe Val Thr Pro Gly Glu Arg Pro Ser Gly Met Phe Asp	

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Ser Gly Ile Gln Tyr Leu Ala Gly Leu Ser Thr Leu Pro Gly Asn Pro			
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gcg ata gca tca ctg atg gca ttc aca gcc tct atc acc agc ccg ctc	4777		
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acc acc caa cat acc ctc ctg ttt aac atc ctg ggg gga tgg gtg gcc	4825		
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gcc caa ctt gct cct ccc agc gct gct tcc gct ttc gta ggc gcc ggc	4873		
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Ile Ala Gly Ala Ala Val Gly Ser Ile Gly Leu Gly Lys Val Leu Val			
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Asp Ile Leu Ala Gly Tyr Gly Ala Gly Val Ala Gly Ala Leu Val Ala			
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Phe Lys Val Met Ser Gly Glu Met Pro Ser Thr Glu Asp Leu Val Asn			
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cta ctc cct atc ctc tcc cct ggc gcc cta gtc gtc ggg gtc gtg	5065		
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Cys Ala Ala Ile Leu Arg Arg His Val Gly Pro Gly Glu Gly Ala Val			
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Gln Trp Met Asn Arg Leu Ile Ala Phe Ala Ser Arg Gly Asn His Val			
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Ser Pro Thr His Tyr Val Pro Glu Ser Asp Ala Ala Ala Arg Val Thr			
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atg aag gcg aag gcg tcc aca gtt aag gct aaa ctt cta tcc gtg gag Met Lys Ala Lys Ala Ser Thr Val Lys Ala Lys Leu Leu Ser Val Glu 1685 1690 1695			6889
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gac acc acc atc atg gca aaa aat gag gtt ttc tgc gtc caa cca gag Asp Thr Thr Ile Met Ala Lys Asn Glu Val Phe Cys Val Gln Pro Glu 1745 1750 1755 1760			7081
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Pro Gln Ala Val Met Gly Ser Ser Tyr Gly Phe Gln Tyr Ser Pro Gly			
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Gln Arg Val Glu Phe Leu Val Asn Ala Trp Lys Ala Lys Lys Cys Pro			
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Met Gly Phe Ala Tyr Asp Thr Arg Cys Phe Asp Ser Thr Val Thr Glu			
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Asn Asp Ile Arg Val Glu Glu Ser Ile Tyr Gln Cys Cys Asp Leu Ala			
1845	1850	1855	
ccc gaa gcc aga cag gcc ata agg tcg ctc aca gag cgg ctt tac atc			7417
Pro Glu Ala Arg Gln Ala Ile Arg Ser Leu Thr Glu Arg Leu Tyr Ile			
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ggg ggc ccc ctg act aat tct aaa ggg cag aac tgc ggc tat cgc cgg			7465
Gly Gly Pro Leu Thr Asn Ser Lys Gly Gln Asn Cys Gly Tyr Arg Arg			
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Cys Arg Ala Ser Gly Val Leu Thr Thr Ser Cys Gly Asn Thr Leu Thr			
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Cys Tyr Leu Lys Ala Ala Ala Cys Arg Ala Ala Lys Leu Gln Asp			
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Cys Thr Met Leu Val Cys Gly Asp Asp Leu Val Val Ile Cys Glu Ser			
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qcg ggg acc caa gag gac gag qcg agc cta cgg gcc ttc acg gag gct			7657
Ala Gly Thr Gln Glu Asp Glu Ala Ser Leu Arg Ala Phe Thr Glu Ala			
1940	1945	1950	
atg act aga tac tct gcc ccc cct ggg gac ccc aaa cca gaa tac			7705
Met Thr Arg Tyr Ser Ala Pro Pro Gly Asp Pro Pro Lys Pro Glu Tyr			
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Asp Leu Glu Leu Ile Thr Ser Cys Ser Ser Asn Val Ser Val Ala His			
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Asp Ala Ser Gly Lys Arg Val Tyr Tyr Leu Thr Arg Asp Pro Thr Thr			
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Pro Leu Ala Arg Ala Ala Trp Glu Thr Ala Arg His Thr Pro Val Asn			
2005	2010	2015	

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Ser Trp Leu Gly Asn Ile Ile Met Tyr Ala Pro Thr Leu Trp Ala Arg	
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Met Ile Leu Met Thr His Phe Phe Ser Ile Leu Leu Ala Gln Glu Gln	
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Leu Glu Lys Ala Leu Asp Cys Gln Ile Tyr Gly Ala Cys Tyr Ser Ile	
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Glu Pro Leu Asp Leu Pro Gln Ile Ile Gln Arg Leu His Gly Leu Ser	
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Arg Ala Arg Ser Val Arg Ala Arg Leu Leu Ser Gln Gly Gly Arg Ala	
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Ala Thr Cys Gly Lys Tyr Leu Phe Asn Trp Ala Val Arg Thr Lys Leu	
2130 2135 2140	2135
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Lys Leu Thr Pro Ile Pro Ala Ala Ser Gln Leu Asp Leu Ser Ser Trp	
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Phe Val Ala Gly Tyr Ser Gly Gly Asp Ile Tyr His Ser Leu Ser Arg	
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Ala Arg Pro Arg Trp Phe Met Trp Cys Leu Leu Leu Ser Val Gly	
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c atg gac	cg gag atg	gca gca tcg	tgc gga ggc	gct ttc gta	ggt 1849	
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1	5	10	15			
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Leu Ile Leu Leu Thr Leu Ser	Pro His Tyr Lys	Leu Phe Leu Ala	Arg			
20	25	30				
ctc ata tgg tgg tta caa tat	ttt atc acc agg	gcc gag gca	cac ttg		1945	
Leu Ile Trp Trp Leu Gln Tyr	Phe Ile Thr Arg	Ala Glu Ala	His Leu			
35	40	45				
caa gtg tgg atc ccc ccc	ctc aac gtt	cg ggg ggc	cgc gat	gcc gtc	1993	
Gln Val Trp Ile Pro Pro Leu	Asn Val Arg	Gly Gly Arg	Asp Ala Val			
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atc ctc ctc acg tgc	gct atc cac	cca gag cta	atc ttt acc	atc acc	2041	
Ile Leu Leu Thr Cys Ala	Ile His Pro	Glu Leu Ile	Phe Thr Ile	Thr		
65	70	75	80			
aaa atc ttg ctc gcc	ata ctc ggt	cca ctc atg	gtg ctc cag	gct ggt	2089	
Lys Ile Leu Ala Ile Leu	Gly Pro Leu	Met Val	Leu Gln Ala	Gly		
85	90	95				
ata acc aaa gtg	ccg tac ttc	gtg cgc gca	cac ggg ctc	att cgt gca	2137	
Ile Thr Lys Val Pro	Tyr Phe Val	Arg Ala His	Gly Leu Ile	Arg Ala		
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tgc atg ctg gtg	cg aag gtt	gct ggg ggt	cat tat	gtc caa atg	2185	
Cys Met Leu Val Arg	Lys Val Ala	Gly Gly His	Tyr Val Gln	Met Ala		
115	120	125				
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Leu Met Lys Leu Ala	Ala Leu Thr	Gly Thr Tyr	Val Tyr Asp	His Leu		
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Thr Pro Leu Arg Asp	Trp Ala His	Ala Gly	Leu Arg Asp	Leu Ala Val		
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gca gtt gag	ccc gtc	ttc tct	gat atg	gag acc aag	2329	
Ala Val Glu Pro	Val Val Phe	Ser Asp	Met Glu	Thr Lys Val		
165	170	175				
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Trp Gly Ala Asp	Thr Ala Ala	Cys Gly	Asp Ile	Ile Leu	Gly Leu Pro	
180	185	190				

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Cys	Leu	Ile	Arg	Leu	Lys	Pro	Thr	Leu	His	Gly	Pro	Thr	Pro	Leu	Leu		
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Tyr	Arg	Leu	Gly	Ala	Val	Gln	Asn	Glu	Val	Thr	Thr	His	Pro	Ile			
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Thr	Lys	Tyr	Ile	Met	Ala	Cys	Met	Ser	Ala	Asp	Leu	Glu	Val	Val	Thr		
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agc	acc	tgg	gt	ct	g	ta	gg	gc	gg	gt	ct	g	cc	gc	tat	4393	

Ser	Thr	Trp	Val	Leu	Val	Gly	Gly	Val	Leu	Ala	Ala	Leu	Ala	Ala	Tyr		
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Cys Ala Ala Ile Leu Arg Arg His Val Gly Pro Gly Glu Gly Ala Val	
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Gln Trp Met Asn Arg Leu Ile Ala Phe Ala Ser Arg Gly Asn His Val	
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Ser Pro Thr His Tyr Val Pro Glu Ser Asp Ala Ala Ala Arg Val Thr	
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Tyr Val Glu Val Thr Arg Val Gly Asp Phe His Tyr Val Thr Gly Met	
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Ile	Leu	Leu	Thr	Cys	Ala	Ile	His	Pro	Glu	Leu	Ile	Phe	Thr	Ile	Thr
				65				70			75			80	
aaa	atc	ttg	ctc	gcc	ata	ctc	ggt	cca	ctc	atg	gtg	ctc	cag	gct	ggt
Lys	Ile	Leu	Leu	Ala	Ile	Leu	Gly	Pro	Leu	Met	Val	Leu	Gln	Ala	Gly
				85				90			95				
ata	acc	aaa	gtg	ccg	tac	ttc	gtg	cgc	gca	cac	ggg	ctc	att	cgt	gca
Ile	Thr	Lys	Val	Pro	Tyr	Phe	Val	Arg	Ala	His	Gly	Leu	Ile	Arg	Ala
				100				105			110				
tgc	atg	ctg	gtg	cg	aag	gtt	gct	ggg	ggt	cat	tat	gtc	caa	atg	gct
Cys	Met	Leu	Val	Arg	Lys	Val	Ala	Gly	Gly	His	Tyr	Val	Gln	Met	Ala
				115				120			125				
ctc	atg	aag	ttg	gcc	gca	ctg	aca	ggt	acg	tac	gtt	tat	gac	cat	ctc
Leu	Met	Lys	Leu	Ala	Ala	Leu	Thr	Gly	Thr	Tyr	Val	Tyr	Asp	His	Leu
				130				135			140				
acc	cca	ctg	cg	gac	tgg	gcc	cac	g	cc	cta	cga	gac	ctt	g	tg
Thr	Pro	Leu	Arg	Asp	Trp	Ala	His	Ala	Gly	Leu	Arg	Asp	Leu	Ala	Val
				145				150			155			160	
gca	gtt	gag	ccc	gtc	ttc	tct	gat	atg	gag	acc	aag	gtt	atc	acc	
Ala	Val	Glu	Pro	Val	Val	Phe	Ser	Asp	Met	Glu	Thr	Lys	Val	Ile	Thr
				165				170			175				
tgg	ggg	gca	gac	acc	g	cg	g	cg	tgt	ggg	gac	atc	atc	ttg	ggc
Trp	Gly	Ala	Asp	Thr	Ala	Ala	Cys	Gly	Asp	Ile	Ile	Leu	Gly	Leu	Pro
				180				185			190				
gtc	tcc	gcc	cgc	agg	ggg	agg	gag	ata	cat	ctg	gga	ccg	gca	gac	agc
Val	Ser	Ala	Arg	Arg	Gly	Arg	Gly	Ile	His	Leu	Gly	Pro	Ala	Asp	Ser
				195				200			205				
ctt	gaa	ggg	cag	ggg	tgg	cga	ctc	ctc	g	c	ctt	att	acg	gcc	tac
Leu	Glu	Gly	Gln	Gly	Trp	Arg	Leu	Leu	Ala	Pro	Ile	Thr	Ala	Tyr	Ser
				210				215			220				

caa cag acg cga ggc cta ctt ggc tgc atc atc acc agc ctc aca ggc Gln Gln Thr Arg Gly Leu Leu Gly Cys Ile Ile Thr Ser Leu Thr Gly 225 230 235 240	2521
cgg gac agg aac cag gtc gag ggg gag gtc caa gtg gtc tcc acc gca Arg Asp Arg Asn Gln Val Glu Gly Glu Val Gln Val Val Ser Thr Ala 245 250 255	2569
aca caa tct ttc ctg gcg acc tgc gtc aat ggc gtg tgt tgg act gtc Thr Gln Ser Phe Leu Ala Thr Cys Val Asn Gly Val Cys Trp Thr Val 260 265 270	2617
tat cat ggt gcc ggc tca aag acc ctt gcc ggc cca aag ggc cca atc Tyr His Gly Ala Gly Ser Lys Thr Leu Ala Gly Pro Lys Gly Pro Ile 275 280 285	2665
acc caa atg tac acc aat gtg gac cag gac ctc gtc ggc tgg caa gcg Thr Gln Met Tyr Thr Asn Val Asp Gln Asp Leu Val Gly Trp Gln Ala 290 295 300	2713
ccc ccc ggg gcg cgt tcc ttg aca cca tgc acc tgc ggc agc tcg gac Pro Pro Gly Ala Arg Ser Leu Thr Pro Cys Thr Cys Gly Ser Ser Asp 305 310 315 320	2761
ctt tac ttg gtc acg aag cat gcc gat gtc att ccg gtg cgc cgg cgg Leu Tyr Leu Val Thr Lys His Ala Asp Val Ile Pro Val Arg Arg Arg 325 330 335	2809
ggc gac agc agg ggg agc cta ctc tcc ccc cgg ccc gtc tcc tac ttg Gly Asp Ser Arg Gly Ser Leu Leu Ser Pro Arg Pro Val Ser Tyr Leu 340 345 350	2857
aag ggc tct tcg ggc ggt cca ctg ctc tgc ccc tcg ggg cac gct gtg Lys Gly Ser Ser Gly Gly Pro Leu Leu Cys Pro Ser Gly His Ala Val 355 360 365	2905
ggc atc ttt cgg gct gcc gtg tgc acc cga ggg gtt gcg aag gcg gtg Gly Ile Phe Arg Ala Ala Val Cys Thr Arg Gly Val Ala Lys Ala Val 370 375 380	2953
gac ttt gta ccc gtc gag tct atg gaa acc act atg cgg tcc ccg gtc Asp Phe Val Pro Val Glu Ser Met Glu Thr Thr Met Arg Ser Pro Val 385 390 395 400	3001
ttc acg gac aac tcg tcc cct ccg gcc gta ccg cag aca ttc cag gtg Phe Thr Asp Asn Ser Ser Pro Pro Ala Val Pro Gln Thr Phe Gln Val 405 410 415	3049
gcc cat cta cac gcc cct act ggt agc ggc aag agc act aag gtg ccg Ala His Leu His Ala Pro Thr Gly Ser Gly Lys Ser Thr Lys Val Pro 420 425 430	3097
gct gcg tat gca gcc caa ggg tat aag gtg ctt gtc ctg aac ccg tcc Ala Ala Tyr Ala Ala Gln Gly Tyr Lys Val Leu Val Leu Asn Pro Ser 435 440 445	3145

gtc gcc gcc acc cta ggt ttc ggg gcg tat atg tct aag gca cat ggt	3193
Val Ala Ala Thr Leu Gly Phe Gly Ala Tyr Met Ser Lys Ala His Gly	
450	455
460	
atc gac cct aac atc aga acc ggg gta agg acc atc acc acg ggt gcc	3241
Ile Asp Pro Asn Ile Arg Thr Gly Val Arg Thr Ile Thr Thr Gly Ala	
465	470
475	480
ccc atc acg tac tcc acc tat ggc aag ttt ctt gcc gac ggt ggt tgc	3289
Pro Ile Thr Tyr Ser Thr Tyr Gly Lys Phe Leu Ala Asp Gly Gly Cys	
485	490
495	
tct ggg ggc gcc tat gac atc ata ata tgt gat gag tgc cac tca act	3337
Ser Gly Gly Ala Tyr Asp Ile Ile Cys Asp Glu Cys His Ser Thr	
500	505
510	
gac tcg acc act atc ctg ggc atc ggc aca gtc ctg gac caa gcg gag	3385
Asp Ser Thr Thr Ile Leu Gly Ile Gly Thr Val Leu Asp Gln Ala Glu	
515	520
525	
acg gct gga gcg cga ctc gtc gtg ctc gcc acc gct acg cct ccg gga	3433
Thr Ala Gly Ala Arg Leu Val Val Leu Ala Thr Ala Thr Pro Pro Gly	
530	535
540	
tcg gtc acc gtg cca cat cca aac atc gag gag gtg gct ctg tcc agc	3481
Ser Val Thr Val Pro His Pro Asn Ile Glu Glu Val Ala Leu Ser Ser	
545	550
555	560
act gga gaa atc ccc ttt tat ggc aaa gcc atc ccc atc gag acc atc	3529
Thr Gly Glu Ile Pro Phe Tyr Gly Lys Ala Ile Pro Ile Glu Thr Ile	
565	570
575	
aag ggg ggg agg cac ctc att ttc tgc cat tcc aag aag aaa tgc gat	3577
Lys Gly Gly Arg His Leu Ile Phe Cys His Ser Lys Lys Lys Cys Asp	
580	585
590	
gag ctc gcc gcg aag ctg tcc ggc ctc gga ctc aat gct gta gca tat	3625
Glu Leu Ala Ala Lys Leu Ser Gly Leu Gly Leu Asn Ala Val Ala Tyr	
595	600
605	
tac cgg ggc ctt gat gta tcc gtc ata cca act agc gga gac gtc att	3673
Tyr Arg Gly Leu Asp Val Ser Val Ile Pro Thr Ser Gly Asp Val Ile	
610	615
620	
gtc gta gca acg gac gct cta atg acg ggc ttt acc ggc gat ttc gac	3721
Val Val Ala Thr Asp Ala Leu Met Thr Gly Phe Thr Gly Asp Phe Asp	
625	630
635	640
tca gtg atc gac tgc aat aca tgt gtc acc cag aca gtc gac ttc agc	3769
Ser Val Ile Asp Cys Asn Thr Cys Val Thr Gln Thr Val Asp Phe Ser	
645	650
655	
ctg gac ccg acc ttc acc att gag acg acg acc gtg cca caa gac gcg	3817
Leu Asp Pro Thr Phe Thr Ile Glu Thr Thr Val Pro Gln Asp Ala	

660	665	670	
gtg tca cgc tcg cag cgg cga ggc agg act ggt agg ggc agg atg ggc Val Ser Arg Ser Gln Arg Arg Gly Arg Thr Gly Arg Gly Arg Met Gly	675	680	3865
att tac agg ttt gtg act cca gga gaa cgg ccc tcg ggc atg ttc gat Ile Tyr Arg Phe Val Thr Pro Gly Glu Arg Pro Ser Gly Met Phe Asp	690	695	3913
tcc tcg gtt ctg tgc gag tgc tat gac gcg ggc tgt gct tgg tac gag Ser Ser Val Leu Cys Glu Cys Tyr Asp Ala Gly Cys Ala Trp Tyr Glu	705	710	3961
720			
ctc acg ccc gcc gag acc tca gtt agg ttg cgg gct tac cta aac aca Leu Thr Pro Ala Glu Thr Ser Val Arg Leu Arg Ala Tyr Leu Asn Thr	725	730	4009
735			
cca ggg ttg ccc gtc tgc cag gac cat ctg gag ttc tgg gag ggc gtc Pro Gly Leu Pro Val Cys Gln Asp His Leu Glu Phe Trp Glu Gly Val	740	745	4057
750			
ttt aca ggc ctc acc cac ata gac gcc cat ttc ttg tcc cag act aag Phe Thr Gly Leu Thr His Ile Asp Ala His Phe Leu Ser Gln Thr Lys	755	760	4105
765			
cag gca gga gac aac ttc ccc tac ctg gta gca tac cag gct acg gtc Gln Ala Gly Asp Asn Phe Pro Tyr Leu Val Ala Tyr Gln Ala Thr Val	770	775	4153
780			
tgc gcc agg gct cag gct cca cct cca tcg tgg gac caa atg tgg aag Cys Ala Arg Ala Gln Ala Pro Pro Ser Trp Asp Gln Met Trp Lys	785	790	4201
795			800
tgt ctc ata cgg cta aag cct acg ctg cac ggg cca acg ccc ctg ctg Cys Leu Ile Arg Leu Lys Pro Thr Leu His Gly Pro Thr Pro Leu Leu	805	810	4249
815			
tat agg ctg gga gcc gtt caa aac gag gtt act acc aca cac ccc ata Tyr Arg Leu Gly Ala Val Gln Asn Glu Val Thr Thr His Pro Ile	820	825	4297
830			
acc aaa tac atc atg gca tgc atg tcg gct gac ctg gag gtc gtc acg Thr Lys Tyr Ile Met Ala Cys Met Ser Ala Asp Leu Glu Val Val Thr	835	840	4345
845			
agc acc tgg gtg ctg gta ggc gga gtc cta gca gct ctg gct gcg tat Ser Thr Trp Val Leu Val Gly Gly Val Leu Ala Ala Leu Ala Ala Tyr	850	855	4393
860			
tgc ctg aca aca ggc agc gtg gtc att gtg ggc agg atc atc ttg tcc Cys Leu Thr Thr Gly Ser Val Val Ile Val Gly Arg Ile Ile Leu Ser	865	870	4441
875			880
gga agg ccg gcc atc att ccc gac agg gaa gtc ctt tac cgg gag ttc			4489

Gly Arg Pro Ala Ile Ile Pro Asp Arg Glu Val Leu Tyr Arg Glu Phe			
885	890	895	
gat gag atg gaa gag tgt gcc tca cac ctc cct tac atc gaa cag gga		4537	
Asp Glu Met Glu Glu Cys Ala Ser His Leu Pro Tyr Ile Glu Gln Gly			
900	905	910	
atg cag ctc gcc gaa caa ttc aaa cag aag gca atc ggg ttg ctg caa		4585	
Met Gln Leu Ala Glu Gln Phe Lys Gln Lys Ala Ile Gly Leu Leu Gln			
915	920	925	
aca gcc acc aag caa gcg gag gct gct ccc gtg gtg gaa tcc aag		4633	
Thr Ala Thr Lys Gln Ala Glu Ala Ala Pro Val Val Glu Ser Lys			
930	935	940	
tgg cgg acc ctc gaa gcc ttc tgg gcg aag cat atg tgg aat ttc atc		4681	
Trp Arg Thr Leu Glu Ala Phe Trp Ala Lys His Met Trp Asn Phe Ile			
945	950	955	960
agc ggg ata caa tat tta gca ggc ttg tcc act ctg cct ggc aac ccc		4729	
Ser Gly Ile Gln Tyr Leu Ala Gly Leu Ser Thr Leu Pro Gly Asn Pro			
965	970	975	
gcg ata gca tca ctg atg gca ttc aca gcc tct atc acc agc ccg ctc		4777	
Ala Ile Ala Ser Leu Met Ala Phe Thr Ala Ser Ile Thr Ser Pro Leu			
980	985	990	
acc acc caa cat acc ctc ctg ttt aac atc ctg ggg gga tgg gtg gcc		4825	
Thr Thr Gln His Thr Leu Leu Phe Asn Ile Leu Gly Gly Trp Val Ala			
995	1000	1005	
gcc caa ctt gct ccc agc gct gct tcc gct ttc gta ggc gcc ggc		4873	
Ala Gln Leu Ala Pro Pro Ser Ala Ala Ser Ala Phe Val Gly Ala Gly			
1010	1015	1020	
atc gct gga gcg gct gtt ggc agc ata ggc ctt ggg aag gtg ctt gtg		4921	
Ile Ala Gly Ala Ala Val Gly Ser Ile Gly Leu Gly Lys Val Leu Val			
1025	1030	1035	1040
gat att ttg gca ggt tat gga gca ggg gtg gca ggc gcg ctc gtg gcc		4969	
Asp Ile Leu Ala Gly Tyr Gly Ala Gly Val Ala Gly Ala Leu Val Ala			
1045	1050	1055	
ttt aag gtc atg agc ggc gag atg ccc tcc acc gag gac ctg gtt aac		5017	
Phe Lys Val Met Ser Gly Glu Met Pro Ser Thr Glu Asp Leu Val Asn			
1060	1065	1070	
cta ctc cct gct atc ctc tcc cct ggc gcc cta gtc gtc ggg gtc gtg		5065	
Leu Leu Pro Ala Ile Leu Ser Pro Gly Ala Leu Val Val Gly Val Val			
1075	1080	1085	
tgc gca gcg ata ctg cgt cgg cac gtg ggc cca ggg gag ggg gct gtg		5113	
Cys Ala Ala Ile Leu Arg Arg His Val Gly Pro Gly Glu Gly Ala Val			
1090	1095	1100	

cag tgg atg aac cgg ctg ata gcg ttc gct tcg cgg ggt aac cac gtc Gln Trp Met Asn Arg Leu Ile Ala Phe Ala Ser Arg Gly Asn His Val 1105 1110 1115 1120	5161
tcc ccc acg cac tat gtg cct gag agc gac gct gca gca cgt gtc act Ser Pro Thr His Tyr Val Pro Glu Ser Asp Ala Ala Arg Val Thr 1125 1130 1135	5209
cag atc ctc tct agt ctt acc atc act cag ctg ctg aag agg ctt cac Gln Ile Leu Ser Ser Leu Thr Ile Thr Gln Leu Leu Lys Arg Leu His 1140 1145 1150	5257
cag tgg atc aac gag gac tgc tcc acg cca tgc tcc ggc tcg tgg cta Gln Trp Ile Asn Glu Asp Cys Ser Thr Pro Cys Ser Gly Ser Trp Leu 1155 1160 1165	5305
aga gat gtt tgg gat tgg ata tgc acg gtg ttg act gat ttc aag gcc Arg Asp Val Trp Asp Trp Ile Cys Thr Val Leu Thr Asp Phe Lys Ala 1170 1175 1180	5353
tgg ctc cag tcc aag ctc ctg ccg cga ttg ccg gga gtc ccc ttc ttc Trp Leu Gln Ser Lys Leu Leu Pro Arg Leu Pro Gly Val Pro Phe Phe 1185 1190 1195 1200	5401
tca tgt caa cgt ggg tac aag gga gtc tgg cgg ggc gac ggc atc atg Ser Cys Gln Arg Gly Tyr Lys Gly Val Trp Arg Gly Asp Gly Ile Met 1205 1210 1215	5449
caa acc acc tgc cca tgt gga gca cag atc acc gga cat gtg aaa aac Gln Thr Thr Cys Pro Cys Gly Ala Gln Ile Thr Gly His Val Lys Asn 1220 1225 1230	5497
tgt tcc atg agg atc gtg ggg cct agg acc tgt agt aac acg tgg cat Cys Ser Met Arg Ile Val Gly Pro Arg Thr Cys Ser Asn Thr Trp His 1235 1240 1245	5545
gga aca ttc ccc att aac gcg tac acc acg ggc ccc tgc acg ccc tcc Gly Thr Phe Pro Ile Asn Ala Tyr Thr Thr Gly Pro Cys Thr Pro Ser 1250 1255 1260	5593
ccg gcg cca aat tat tct agg gcg ctg tgg cgg gtg gct gct gag gag Pro Ala Pro Asn Tyr Ser Arg Ala Leu Trp Arg Val Ala Ala Glu Glu 1265 1270 1275 1280	5641
tac gtg gag gtt acg cga gtg ggg gat ttc cac tac gtg acg ggc atg Tyr Val Glu Val Thr Arg Val Gly Asp Phe His Tyr Val Thr Gly Met 1285 1290 1295	5689
acc act gac aac gta aag tgc ccg tgt cag gtt ccg gcc ccc gaa ttc Thr Thr Asp Asn Val Lys Cys Pro Cys Gln Val Pro Ala Pro Glu Phe 1300 1305 1310	5737
ttc aca gaa gtg gat ggg gtg cgg ttg cac agg tac gct cca gcg tgc Phe Thr Glu Val Asp Gly Val Arg Leu His Arg Tyr Ala Pro Ala Cys 1315 1320 1325	5785

aaa ccc ctc cta cgg gag gag gtc aca ttc ctg gtc ggg ctc aat caa	5833
Lys Pro Leu Leu Arg Glu Glu Val Thr Phe Leu Val Gly Leu Asn Gln	
1330 1335 1340	
tac ccg gtt ggg tca cag ctc cca tgc gag ccc gaa ctg gac gta gca	5881
Tyr Pro Val Gly Ser Gln Leu Pro Cys Glu Pro Glu Leu Asp Val Ala	
1345 1350 1355 1360	
gtg ctc act tcc atg ctc acc gac ccc tcc cac att acg gcg gag acg	5929
Val Leu Thr Ser Met Leu Thr Asp Pro Ser His Ile Thr Ala Glu Thr	
1365 1370 1375	
gct aag cgt agg ctg gcc agg gga tct ccc ccc tcc ttg gcc agc tca	5977
Ala Lys Arg Arg Leu Ala Arg Gly Ser Pro Pro Ser Leu Ala Ser Ser	
1380 1385 1390	
tca gct agc cag ctg tct gcg cct tcc ttg aag gca aca tgc act acc	6025
Ser Ala Ser Gln Leu Ser Ala Pro Ser Leu Lys Ala Thr Cys Thr Thr	
1395 1400 1405	
cgt cat gac tcc ccg gac gct gac ctc atc gag gcc aac ctc ctg tgg	6073
Arg His Asp Ser Pro Asp Ala Asp Leu Ile Glu Ala Asn Leu Leu Trp	
1410 1415 1420	
cgg cag gag atg ggc ggg aac atc acc cgc gtg gag tca gag aat aag	6121
Arg Gln Glu Met Gly Gly Asn Ile Thr Arg Val Glu Ser Glu Asn Lys	
1425 1430 1435 1440	
gta gta att ttg gac tct ttc gag ccg ctc caa gcg gag gag gat gag	6169
Val Val Ile Leu Asp Ser Phe Glu Pro Leu Gln Ala Glu Glu Asp Glu	
1445 1450 1455	
agg gaa gta tcc gtt ccg gcg gag atc ctg cgg agg tcc agg aaa ttc	6217
Arg Glu Val Ser Val Pro Ala Glu Ile Leu Arg Arg Ser Arg Lys Phe	
1460 1465 1470	
cct cga gcg atg ccc ata tgg gca cgc ccg gat tac aac cct cca ctg	6265
Pro Arg Ala Met Pro Ile Trp Ala Arg Pro Asp Tyr Asn Pro Pro Leu	
1475 1480 1485	
tta gag tcc tgg aag gac ccg gac tac gtc cct cca gtg gta cac ggg	6313
Leu Glu Ser Trp Lys Asp Pro Asp Tyr Val Pro Pro Val Val His Gly	
1490 1495 1500	
tgt cca ttg ccg cct gcc aag gcc cct ccg ata cca cct cca cgg agg	6361
Cys Pro Leu Pro Pro Ala Lys Ala Pro Pro Ile Pro Pro Pro Arg Arg	
1505 1510 1515 1520	
aag agg acg gtt gtc ctg tca gaa tct acc gtg tct tct gcc ttg gcg	6409
Lys Arg Thr Val Val Leu Ser Glu Ser Thr Val Ser Ser Ala Leu Ala	
1525 1530 1535	
gag ctc gcc aca aag acc ttc ggc agc tcc gaa tcg tcg gcc gtc gac	6457
Glu Leu Ala Thr Lys Thr Phe Gly Ser Ser Glu Ser Ser Ala Val Asp	

1540	1545	1550	
agc ggc acg gca acg gcc tct cct gac cag ccc tcc gac gac ggc gac Ser Gly Thr Ala Thr Ala Ser Pro Asp Gln Pro Ser Asp Asp Gly Asp			6505
1555	1560	1565	
gcg gga tcc gac gtt gag tcg tac tcc tcc atg ccc ccc ctt gag ggg Ala Gly Ser Asp Val Glu Ser Tyr Ser Ser Met Pro Pro Leu Glu Gly			6553
1570	1575	1580	
gag ccg ggg gat ccc gat ctc agc gac ggg tct tgg tct acc gta agc Glu Pro Gly Asp Pro Asp Leu Ser Asp Gly Ser Trp Ser Thr Val Ser			6601
1585	1590	1595	1600
gag gag gct agt gag gac gtc gtc tgc tgc tcg atg tcc tac aca tgg Glu Glu Ala Ser Glu Asp Val Val Cys Cys Ser Met Ser Tyr Thr Trp			6649
1605	1610	1615	
aca ggc gcc ctg atc acg cca tgc gct gcg gag gaa acc aag ctg ccc Thr Gly Ala Leu Ile Thr Pro Cys Ala Ala Glu Glu Thr Lys Leu Pro			6697
1620	1625	1630	
atc aat gca ctg agc aac tct ttg ctc cgt cac cac aac ttg gtc tat Ile Asn Ala Leu Ser Asn Ser Leu Leu Arg His His Asn Leu Val Tyr			6745
1635	1640	1645	
gct aca aca tct cgc agc gca agc ctg cgg cag aag aag gtc acc ttt Ala Thr Thr Ser Arg Ser Ala Ser Leu Arg Gln Lys Lys Val Thr Phe			6793
1650	1655	1660	
gac aga ctg cag gtc ctg gac gac cac tac cgg gac gtg ctc aag gag Asp Arg Leu Gln Val Leu Asp Asp His Tyr Arg Asp Val Leu Lys Glu			6841
1665	1670	1675	1680
atg aag gcg aag gcg tcc aca gtt aag gct aaa ctt cta tcc gtg gag Met Lys Ala Lys Ala Ser Thr Val Lys Ala Lys Leu Leu Ser Val Glu			6889
1685	1690	1695	
gaa gcc tgt aag ctg acg ccc cca cat tcg gcc aga tct aaa ttt ggc Glu Ala Cys Lys Leu Thr Pro Pro His Ser Ala Arg Ser Lys Phe Gly			6937
1700	1705	1710	
tat ggg gca aag gac gtc cgg aac cta tcc agc aag gcc gtt aac cac Tyr Gly Ala Lys Asp Val Arg Asn Leu Ser Ser Lys Ala Val Asn His			6985
1715	1720	1725	
atc cgc tcc gtg tgg aag gac ttg ctg gaa gac act gag aca cca att Ile Arg Ser Val Trp Lys Asp Leu Leu Glu Asp Thr Glu Thr Pro Ile			7033
1730	1735	1740	
gac acc acc atc atg gca aaa aat gag gtt ttc tgc gtc caa cca gag Asp Thr Thr Ile Met Ala Lys Asn Glu Val Phe Cys Val Gln Pro Glu			7081
1745	1750	1755	1760
aag ggg ggc cgc aag cca gct cgc ctt atc gta ttc cca gat ttg ggg			7129

Lys	Gly	Gly	Arg	Lys	Pro	Ala	Arg	Leu	Ile	Val	Phe	Pro	Asp	Leu	Gly	
1765								1770						1775		
gtt cgt gtg tgc gag aaa atg gcc ctt tac gat gtg gtc tcc acc ctc															7177	
Val	Arg	Val	Cys	Glu	Lys	Met	Ala	Leu	Tyr	Asp	Val	Val	Ser	Thr	Leu	
1780								1785						1790		
cct cag gcc gtg atg ggc tct tca tac gga ttc caa tac tct cct gga															7225	
Pro	Gln	Ala	Val	Met	Gly	Ser	Ser	Tyr	Gly	Phe	Gln	Tyr	Ser	Pro	Gly	
1795								1800						1805		
cag cgg gtc gag ttc ctg gtg aat gcc tgg aaa gcg aag aaa tgc cct															7273	
Gln	Arg	Val	Glu	Phe	Leu	Val	Asn	Ala	Trp	Lys	Ala	Lys	Lys	Cys	Pro	
1810								1815						1820		
atg ggc ttc gca tat gac acc cgc tgt ttt gac tca acg gtc act gag															7321	
Met	Gly	Phe	Ala	Tyr	Asp	Thr	Arg	Cys	Phe	Asp	Ser	Thr	Val	Thr	Glu	
1825								1830						1840		
aat gac atc cgt gtt gag gag tca atc tac caa tgt tgt gac ttg gcc															7369	
Asn	Asp	Ile	Arg	Val	Glu	Glu	Ser	Ile	Tyr	Gln	Cys	Cys	Asp	Leu	Ala	
1845								1850						1855		
ccc gaa gcc aga cag gcc ata agg tcg ctc aca gag cgg ctt tac atc															7417	
Pro	Glu	Ala	Arg	Gln	Ala	Ile	Arg	Ser	Leu	Thr	Glu	Arg	Leu	Tyr	Ile	
1860								1865						1870		
ggg ggc ccc ctg act aat tct aaa ggg cag aac tgc ggc tat cgc cgg															7465	
Gly	Gly	Pro	Leu	Thr	Asn	Ser	Lys	Gly	Gln	Asn	Cys	Gly	Tyr	Arg	Arg	
1875								1880						1885		
tgc cgc qcg agc qgt gta ctg acg acc agc tgc qgt aat acc ctc aca															7513	
Cys	Arg	Ala	Ser	Gly	Val	Leu	Thr	Thr	Ser	Cys	Gly	Asn	Thr	Leu	Thr	
1890								1895						1900		
tgt tac ttg aag gcc gct gcg gcc tgt cga gct gcg aag ctc cag gac															7561	
Cys	Tyr	Leu	Lys	Ala	Ala	Ala	Cys	Arg	Ala	Ala	Lys	Leu	Gln	Asp		
1905								1910						1915		
tgc acg atg ctc gta tgc gga gac gac ctt gtc gtt atc tgt gaa agc															7609	
Cys	Thr	Met	Leu	Val	Cys	Gly	Asp	Asp	Leu	Val	Val	Ile	Cys	Glu	Ser	
1925								1930						1935		
gcg ggg acc caa gag gac gag gcg agc cta cgg gcc ttc acg gag gct															7657	
Ala	Gly	Thr	Gln	Glu	Asp	Glu	Ala	Ser	Leu	Arg	Ala	Phe	Thr	Glu	Ala	
1940								1945						1950		
atg act aga tac tct gcc ccc cct ggg gac ccc ccc aaa cca gaa tac															7705	
Met	Thr	Arg	Tyr	Ser	Ala	Pro	Pro	Gly	Asp	Pro	Pro	Lys	Pro	Glu	Tyr	
1955								1960						1965		
gac ttg gag ttg ata aca tca tgc tcc tcc aat gtg tca gtc gcg cac															7753	
Asp	Leu	Glu	Leu	Ile	Thr	Ser	Cys	Ser	Ser	Asn	Val	Ser	Val	Ala	His	
1970								1975						1980		

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gat gca tct ggc aaa agg gtg tac tat ctc acc cgt gac ccc acc acc	7801
Asp Ala Ser Gly Lys Arg Val Tyr Tyr Leu Thr Arg Asp Pro Thr Thr	
1985 1990 1995 2000	
ccc ctt gcg cggt gct gcg tgg gag aca gct aga cac act cca gtc aat	7849
Pro Leu Ala Arg Ala Ala Trp Glu Thr Ala Arg His Thr Pro Val Asn	
2005 2010 2015	
tcc tgg cta ggc aac atc atc atg tat gcg ccc acc ttg tgg gca agg	7897
Ser Trp Leu Gly Asn Ile Ile Met Tyr Ala Pro Thr Leu Trp Ala Arg	
2020 2025 2030	
atg atc ctg atg act cat ttc ttc tcc atc ctt cta gct cag gaa caa	7945
Met Ile Leu Met Thr His Phe Phe Ser Ile Leu Leu Ala Gln Glu Gln	
2035 2040 2045	
ctt gaa aaa gcc cta gat tgt cag atc tac ggg gcc tgt tac tcc att	7993
Leu Glu Lys Ala Leu Asp Cys Gln Ile Tyr Gly Ala Cys Tyr Ser Ile	
2050 2055 2060	
gag cca ctt gac cta cct cag atc att caa cga ctc cac ggc ctt agc	8041
Glu Pro Leu Asp Leu Pro Gln Ile Ile Gln Arg Leu His Gly Leu Ser	
2065 2070 2075 2080	
gca ttt tca ctc cat agt tac tct cca ggt gag atc aat agg gtg gct	8089
Ala Phe Ser Leu His Ser Tyr Ser Pro Gly Glu Ile Asn Arg Val Ala	
2085 2090 2095	
tca tgc ctc agg aaa ctt ggg gta ccg ccc ttg cga gtc tgg aga cat	8137
Ser Cys Leu Arg Lys Leu Gly Val Pro Pro Leu Arg Val Trp Arg His	
2100 2105 2110	
cggt gcc aga agt gtc cgc gct agg cta ctg tcc cag ggg ggg agg gct	8185
Arg Ala Arg Ser Val Arg Ala Arg Leu Leu Ser Gln Gly Gly Arg Ala	
2115 2120 2125	
gcc act tgt ggc aag tac ctc ttc aac tgg gca gta agg acc aag ctc	8233
Ala Thr Cys Gly Lys Tyr Leu Phe Asn Trp Ala Val Arg Thr Lys Leu	
2130 2135 2140	
aaa ctc act cca atc ccg gct gcg tcc cag ttg gat tta tcc agc tgg	8281
Lys Leu Thr Pro Ile Pro Ala Ala Ser Gln Leu Asp Leu Ser Ser Trp	
2145 2150 2155 2160	
ttc gtt gct ggt tac agc ggg gga gac ata tat cac agc ctg tct cgt	8329
Phe Val Ala Gly Tyr Ser Gly Gly Asp Ile Tyr His Ser Leu Ser Arg	
2165 2170 2175	
gcc cga ccc cgc tgg ttc atg tgg tgc cta ctc cta ctt tct gta ggg	8377
Ala Arg Pro Arg Trp Phe Met Trp Cys Leu Leu Leu Ser Val Gly	
2180 2185 2190	
gta ggc atc tat cta ctc ccc aac cga tga acggggagct aaacactcca	8427
Val Gly Ile Tyr Leu Leu Pro Asn Arg *	
2195 2200	

ggccaatagg ccatcctgtt ttttccctt ttttttttc tttttttttt tttttttttt 8487  
ttttttttt ttttctcctt ttttttcctt cttttttcc ttttcttcc tttgggtggct 8547  
ccatcttagc cctagtcacg gctagctgtg aaaggtccgt gagccgctt gactgcagaga 8607  
gtgctgatac tggcctctct gcagatcaag t 8638